STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0000337
Owner:	The Buick Resource Recycling Facility, LLC
Address:	18594 Highway KK, Boss MO 65440
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Buick Resource Recycling Facility
Facility Address:	18594 Highway KK, Boss MO 65440
Legal Description:	See page 2.
UTM Coordinates:	See page 2.
Receiving Stream:	Tributary of Crooked Creek (U)
First Classified Stream and ID:	Crooked Creek (P) (01928), 303(d) List
USGS Basin & Sub-watershed No.:	07140102-0402

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

See Page Two (2) for facility description.

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Sections 640.013, 621.250, and 644.051.6 of the Law.

January 24, 2011
Effective Date

June 24, 2014
Modification Date

Sara Parker Pauley, Director, Department of Natural Resources

January 23, 2016
Expiration Date

John Madras, Director, Water Protection Program

FACILITY DESCRIPTION (continued)

Outfall #001 – Industrial process wastewater, stormwater, domestic wastewater, purge water from groundwater well sampling, land fill leachate – SIC #3341
Internal pretreatment facility that transfers partially treated stormwater and process wastewater to the Buick Mine/Mill (MO-0002003) for further treatment and eventual discharge to Strother Creek.
Legal Description: SE ¼, SW ¼, Sec. 14, T34N, R2W, Iron County
UTM Coordinates: X=664868; Y= 4166819

Design flow is 0.720 MGD maximum flow based on 500 gpm from the new treatment plant or from the old treatment plant, or a combination of both.
Design average flow is 0.432MGD

The treatment consists of the following unit processes:
1. Physical settling in the six million gallon above-ground concrete collection tank. The wastewater is then pumped into the wastewater treatment plant(s).
2. Chemical addition for precipitation, coagulation and sedimentation of insoluble and soluble heavy metals.
3. pH adjustment
4. Mixing and clarification
5. Polishing Filter(s) before piping to Buick Mine/Mill tailings pond (MO-0002003).

Outfall #002 – Industrial stormwater – SIC #3341

Emergency overflow from stormwater retention basin, Impoundment E. Stormwater flows from equipment storage, flux storage, the former Magmont mill area, and unused property. The retention basin will be operated in a no-discharge fashion by pumping to the plant water make-up tanks for reuse and/or the treatment plant. Flows in excess of the pumping capacity may be discharged in accordance with the effluent limitations provided the excess flow is being generated by a 1-in-10 year storm event (rainfall exceeding 5.5 inches in a 24 hour period).
Legal Description: NE ¼, SW ¼, Sec. 14, T34N, R2W, Iron County
UTM Coordinates: X=665082, Y=4167458

Outfall #003 – Emergency overflow - Industry – SIC #3341
Emergency overflow from above-ground concrete stormwater tank. Physical settling. --Contents include industrial process wastewater; run off of stormwater associated with industrial activity; miscellaneous non-scope flows; treated sanitary wastewater; and leachate from the secondary slag landfill.
Legal Description: NW ¼, SW ¼, Sec. 14, T34N, R2W, Iron County
UTM Coordinates: X=664446, Y=4167376

Outfall #004 – Renamed S1.

Outfall #005 – Aerated Lagoon –#3341
Internal outfall for sanitary water from lagoon treatment.
Legal Description: NW ¼, SW ¼, Sec. 14, T34N, R2W, Iron County
UTM Coordinates: X=664511, Y=4167324

S1 – Downstream monitoring location
Located at the low water bridge crossing Crooked Creek.
Legal Description: NW¼, NW ¼, Sec. 31, T35N, R2W, Crawford County
UTM Coordinates: X=658940, Y=4175370

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001 (Note 1)						
Flow	MGD	*		*	once/month	24 hr. total
pH – Units	SU	**		**	once/month	grab
Total Suspended Solids	lbs/day	127		85	once/month	24 hr. composite***
Chloride as Cl	mg/L	*		*	once/month	24 hr. composite***
Sulfate as SO_4	mg/L	*		*	once/month	24 hr. composite***
Antimony, Total Recoverable	lbs/day	5.59		2.28	once/month	24 hr. composite***
Arsenic, Total Recoverable	lbs/day	4.03		1.61	once/month	24 hr. composite***
Lead, Total Recoverable	lbs/day	2.44		1.09	once/month	24 hr. composite***
Zinc, Total Recoverable	lbs/day	8.89		3.43	once/month	24 hr. composite***
MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE NEXT REPORT IS DUE **JULY 28, 2014**. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Outfall #002 (Notes 2 and 3)						
Basin Freeboard	feet	*		*	once/month	measured
Precipitation	inches	*			daily	24 hr. total
MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE NEXT REPORT IS DUE **JULY 28, 2014**. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.

** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 7.5-10.0 pH units.

*** For the purposes of this permit, a 24-hour composite sample shall be a modified composite, consisting of a minimum of four aliquots collected within a 24-hour period with a minimum of two hours between each aliquot.

Note 1: The facility may use the previous wastewater plant and the new wastewater treatment plant in periods of precipitation, operation or maintenance activities. The facility shall meet the final effluent limits.

Note 2: **Emergency Discharge**. Outfall #002 may only discharge if rainfall exceeds the 1 in 10 year (Data taken from the Missouri Climate Atlas) rainfall event. **Discharge for any other reason shall constitute a permit violation and shall be recorded in accordance with Standard Conditions, Part 1, Section B.2.b.** Monitoring shall take place once per day while discharging. Test results are due on the 28th day of the following month after the cessation of the discharge. Permittee shall monitor for the following constituents:

Constituent	Units
Flow	MGD
Total Suspended Solids	mg/l
pH – Units	Standard Units
Cadmium, Total Recoverable	µg/L
Copper, Total Recoverable	µg/L
Lead, Total Recoverable	µg/L
Zinc, Total Recoverable	µg/L

Note 3: Basin freeboard shall be reported as lagoon water level in feet below the overflow level.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #003						
Flow	MGD	*		*	once/month	24 hr. total
pH – Units	SU	†		†	once/month	grab
Total Suspended Solids	mg/L	127		85	once/month	24 hr. composite***
Chloride as Cl	mg/L	*		*	once/month	24 hr. composite***
Sulfate as SO_4	mg/L	*		*	once/month	24 hr. composite***
Antimony, Total Recoverable	lbs/day	5.59		2.28	once/month	24 hr. composite***
Arsenic, Total Recoverable	lbs/day µg/L	0.28 33		0.14 16	once/month	24 hr. composite***
Cadmium, Total Recoverable	µg/L	1.0		0.5	once/month	24 hr. composite***
Copper, Total Recoverable	µg/L	39.8		19.8	once/month	24 hr. composite***
Iron, Total Recoverable	µg/L	1639		817	once/month	24 hr. composite***
Lead, Total Recoverable	lbs/day µg/L	0.18 21.4		0.09 10.6	once/month	24 hr. composite***
Zinc, Total Recoverable	lbs/day µg/L	2.6 307.3		1.3 153.1	once/month	24 hr. composite***
MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE NEXT REPORT IS DUE **JULY 28, 2014**. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Barium, Total Recoverable	µg/L	*		*	once/quarter****	grab
Selenium, Total Recoverable	µg/L	*		*	once/quarter****	grab
Whole Effluent Toxicity (WET) Test	% Survival	See Special Condition #14			once/quarter****	grab
MONITORING REPORTS SHALL BE SUBMITTED **QUARTERLY**; THE NEXT REPORT IS DUE **JULY 28, 2014**. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.

† pH is measured in pH units and is not to be averaged. The pH is limited to the range of 7.5-9.0 pH units.

*** For the purposes of this permit, a 24-hour composite sample shall be a modified composite, consisting of a minimum of four aliquots collected within a 24-hour period with a minimum of two hours between each aliquot. In the case of outfall 003, the sample shall be considered complete with less than four aliquots if discharge continues for less than 24 hours.

**** See table below for quarterly sampling.

Minimum Sampling Requirements

Quarter	Months	Effluent Parameters	Report is Due
First	January, February, March	Sample at least once during any month of the quarter	April 28th
Second	April, May, June	Sample at least once during any month of the quarter	July 28th
Third	July, August, September	Sample at least once during any month of the quarter	October 28th
Fourth	October, November, December	Sample at least once during any month of the quarter	January 28th

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #005, Internal Compliance Point						
Flow	MGD	*		*	once/quarter****	24 hr. total
pH – Units	SU	†		†	once/quarter****	grab
Biological Oxygen Demand5	mg/L		65	45	once/quarter****	grab
Total Suspended Solids	mg/L		120	80	once/quarter****	grab
Ammonia as N (April 1-Sept 30)	mg/L	3.7		1.9	once/quarter****	grab
Ammonia as N (Oct 1-March 31)	mg/L	7.5		2.8	once/quarter****	grab
MONITORING REPORTS SHALL BE SUBMITTED **QUARTERLY**; THE NEXT REPORT IS DUE **JULY 28, 2014**. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Outfall #S1- Instream Monitoring Point						
Flow	MGD	*		*	once/month	24 hr. estimate
Sulfate as SO_4	mg/L	*		*	once/month	grab
Antimony, Dissolved	µg/L	*		*	once/month	grab
Arsenic, Dissolved	µg/L	*		*	once/month	grab
Cadmium, Dissolved	µg/L	*		*	once/month	grab
Copper, Dissolved	µg/L	*		*	once/month	grab
Lead, Dissolved	µg/L	*		*	once/month	grab
Zinc, Dissolved	µg/L	*		*	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE NEXT REPORT IS DUE **JULY 28, 2014**. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.

† pH is measured in pH units and is not to be averaged. The pH is to be maintained at or above 6.5 pH units.

**** See table below for quarterly sampling.

Minimum Sampling Requirements			
Quarter	**Months**	**Effluent Parameters**	**Report is Due**
First	January, February, March	Sample at least once during any month of the quarter	April 28th
Second	April, May, June	Sample at least once during any month of the quarter	July 28th
Third	July, August, September	Sample at least once during any month of the quarter	October 28th
Fourth	October, November, December	Sample at least once during any month of the quarter	January 28th

B. STANDARD CONDITIONS

In addition to specified conditions stated herein, this permit is subject to the attached Parts I & III standard conditions dated November 1, 2013 and May 1, 2014, and hereby incorporated as though fully set forth herein.

C. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.
   (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
   (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

   The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.

3. Water Quality Standards
   (a) To the extent required by law, discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
   (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
      (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
      (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
      (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
      (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
      (5) There shall be no significant human health hazard from incidental contact with the water;
      (6) There shall be no acute toxicity to livestock or wildlife watering;
      (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
      (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

4. Changes in Discharges of Toxic Substances
   The permittee shall notify the Director as soon as it knows or has reason to believe:
   (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
      (1) One hundred micrograms per liter (100 µg/L);
      (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
      (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
      (4) The level established by the Director in accordance with 40 CFR 122.44(f).
   (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

5. Report as no-discharge when a discharge does not occur during the report period.

6. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).

7. Any pesticide discharge from any point source shall comply with the requirements of Federal Insecticide, Fungicide and Rodenticide Act, as amended (7 U.S.C. 136 et. seq.) and the use of such pesticides shall be in a manner consistent with its label.

C. SPECIAL CONDITIONS (continued)

8. The permittee shall implement a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP must be prepared and implemented upon permit issuance. The SWPPP must be kept on-site and should not be sent to the department unless specifically requested. The SWPPP must be reviewed and updated, if needed, every five (5) years or as site conditions change. The permittee shall select, install, use, operate, and maintain the Best Management Practices prescribed in the SWPPP in accordance with the concepts and methods described in the following document:

   Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators, (Document number EPA 833-B-09-002) published by the United States Environmental Protection Agency (USEPA) in February 2009.
   The SWPPP must include the following:

   (a) A listing of specific Best Management Practices (BMPs) and a narrative explaining how BMPs will be implemented to control and minimize the amount of potential contaminants that may enter stormwater.
   (b) The SWPPP must include a schedule for at least monthly site inspections and brief written reports. The inspections must include observation and evaluation of BMP effectiveness. Deficiencies must be corrected within seven (7) days and the actions taken to correct the deficiencies shall be included with the written report, including photographs. Any corrective measure that necessitates major construction may also need a construction permit. Inspection reports must be kept on site with the SWPPP and maintained for a period of five (5) years. These must be made available to department personnel upon request.
   (c) A provision for designating an individual to be responsible for environmental matters.
   (d) A provision for providing training to all personnel involved in material handling and storage, and housekeeping of maintenance and cleaning areas. Proof of training shall be submitted on request of the department.

9. Permittee shall adhere to the following minimum Best Management Practices (BMPs):

   (a) Prevent the spillage or loss of fluids, oil, grease, fuel, etc. from vehicle maintenance, equipment cleaning, or warehouse activities and thereby prevent the contamination of storm water from these substances.
   (b) Provide collection facilities and arrange for proper disposal of waste products including but not limited to petroleum waste products, and solvents.
   (c) Store all paint, solvents, petroleum products and petroleum waste products (except fuels), and storage containers (such as drums, cans, or cartons) so that these materials are not exposed to storm water or provide other prescribed BMPs such as plastic lids and/or portable spill pans to prevent the commingling of storm water with container contents. Commingled water may not be discharged under this permit. Provide spill prevention control, and/or management sufficient to prevent any spills of these pollutants from entering waters of the state. Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater.
   (d) Provide good housekeeping practices on the site to keep trash from entry into waters of the state.
   (e) Provide sediment and erosion control sufficient to prevent or control sediment loss off of the property. This could include the use of straw bales, silt fences, or sediment basins, if needed, to comply with effluent limits.

10. The purpose of the SWPPP and the BMPs listed herein is the prevention of pollution of waters of the state. A deficiency of a BMP means it was not effective in preventing pollution [10 CSR 20-2.010(56)] of waters of the state, and corrective actions means the facility took steps to eliminate the deficiency.

11. Before releasing water that has accumulated in secondary containment areas it must be examined for hydrocarbon odor and presence of a sheen. If the presence of hydrocarbons is indicated, this water must be tested for Total Petroleum Hydrocarbons (TPH). The suggested analytical method for testing TPH is non-Halogenated Organic by Gas Chromatography method 8015 (also known as OA1 and OA2). However, if the permittee so desires to use other approved testing methods (i.e. EPA 1664), they may do so. If the concentration for TPH exceeds 10mg/L, the water shall be taken to a WWTP for treatment.

12. Release of a hazardous substance must be reported to the department in accordance with 10 CSR 24-3.010. A record of each reportable spill shall be retained with the SWPPP and made available to the department upon request.

13. As the means of control of leachate from the onsite secondary slag landfill is a leachate collection system, which conveys the leachate to the treatment system discharging through outfall 001, the collection system shall be maintained so as to prevent leaks. Uncontrolled discharge of secondary slag landfill leachate, including from leaking pipes, tanks or pumps, to surface or subsurface shall be a violation of this permit.

C. SPECIAL CONDITIONS (continued)

14. Whole Effluent Toxicity (WET) Test for outfall 003 shall be conducted as follows:

SUMMARY OF ACUTE WET TESTING FOR OUTFALL 003				
OUTFALL	AEC	FREQUENCY	SAMPLE TYPE	MONTH
003	100%	Once per quarter	Grab	When discharge occurs

Dilution Series						
100% effluent	62.5% effluent	25% effluent	12.5% effluent	6.25% effluent	(Control) 100% upstream, if available	(Control) 100% Lab Water, also called synthetic water

(a) Test Schedule and Follow-Up Requirements

(1) Perform a MULTIPLE-dilution acute WET test in the months and at the frequency specified above. For tests which are successfully passed, submit test results using the Department's WET test report form #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.

(a) Chemical and physical analysis of the upstream control and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping.

(b) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analysis performed upon any other effluent concentration.

(c) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.

(2) The WET test will be considered a failure if mortality observed in effluent concentrations equal to or less than the AEC is significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available, synthetic laboratory control water may be used.

(3) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (4) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.

(4) If the effluent fails the test for BOTH test species, a multiple dilution test shall be performed for BOTH test species within 30 calendar days and biweekly thereafter (for storm water, tests shall be performed on the next and subsequent storm water discharges as they occur, but not less than 7 days apart) until one of the following conditions are met: Note: Written request regarding single species multiple dilution accelerated testing will be address by THE WATER PROTECTION PROGRAM on a case by case basis.

(i) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.

(ii) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

(5) Follow-up tests do not negate an initial failed test.

(6) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.

(7) Additionally, the following shall apply upon failure of the third follow up MULTIPLE DILUTION test the permittee shall contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of the automatic trigger or DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.

C. SPECIAL CONDITIONS (continued)

14. Whole Effluent Toxicity (WET) Test for outfall 003 (continued):

(8) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
(9) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.
(10) Submit a concise summary in tabular format of all WET test results with the annual report.

(b) Test Conditions

(1) Test Type: Acute Static non-renewal
(2) All tests, including repeat tests for previous failures, shall include both test species listed below unless approved by the department on a case by case basis.
(3) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.
(4) Test period: 48 hours at the "Allowable Effluent Concentration" (AEC) specified above.
(5) Upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.
(6) Tests will be run with 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent, and reconstituted water.
(7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.
(8) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.

Whole-effluent-toxicity test shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms

Missouri Department of Natural Resources
FACT SHEET
FOR THE PURPOSE OF MODIFICATION
OF
MO-0000337
DOE RUN BUICK RESOURCE RECYCLING FACILITY

The Federal Water Pollution Control Act ("Clean Water Act" Section 402 Public Law 92-500 as amended) established the National Pollution Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States, and the release of storm water from certain point sources. All such discharges are unlawful without a permit (Section 301 of the "Clean Water Act"). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Missouri State Operating Permits (MSOPs) are issued by the Director of the Missouri Department of Natural Resources (Department) under an approved program, operating in accordance with federal and state laws (Federal "Clean Water Act" and "Missouri Clean Water Law" Section 644 as amended). MSOPs are issued for a period of five (5) years unless otherwise specified.

As per [40 CFR Part 124.8(a)] and [10 CSR 20-6.020(1)2.] a Factsheet shall be prepared to give pertinent information regarding the applicable regulations, rationale for the development of effluent limitations and conditions, and the public participation process for the Missouri State Operating Permit (operating permit) listed below. A Factsheet is not an enforceable part of an operating permit. This Factsheet is for: Major, Industrial Facility, and/or permit with widespread public interest.

Part I – Facility Information

Facility Type: Industrial
Facility SIC Code(s): 3341-Lead Recycling

Facility Description:

This facility is a recycler of various forms of lead-bearing materials into refined lead metal. Sulfuric acid originating from the recycling of those materials is used in the production process or neutralized. Lead-acid batteries are cracked and shredded to separate the lead metal, lead paste, plastic case and acid. The lead metal and paste is smelted to recover the lead which is cast into pigs, ingots and billets.

Categorical sources of pollutants and pollutants from non-scope (i.e. not listed in category) flows are detailed in the derivation of technical-based limits section, below. During an inspection on June 23, 2010, the Permit Writer observed very significant iron staining of limestone riprap below outfall 001. Doe Run staff indicated the staining was due to the use of large amounts of Ferric Chloride in the wastewater treatment process. Facility experiences occasional overflows from the storage tank (outfall 003) that holds wastewater for treatment (via outfall 001). The facility has demonstrated that discharges from outfall 003 are acutely toxic to aquatic life.

Have any changes occurred at this facility or in the receiving water body that effects effluent limit derivation? Yes ☒

2014 Modification
The 2014 modification is the piping of the effluent of the process wastewater from the treatment plant to the Buick Mine/Mill (MO-0002003) tailings pond and ultimate discharge to Tributary to Strother Creek through Outfall #002. The facility is required to be in compliance with categorical standards in 40 CFR 421.73(d) and 421.134 before piping to Buick Mine for further treatment and/or reuse. Before final discharge, the flows must be in compliance with the Buick Mine effluent limits, including water quality based. The categorical effluent limits are calculated in the Antidegradation Review, Appendix A. This modification allows for both the new treatment plant and the older treatment plant be utilized as necessary to meet the final effluent limitations on Outfall #001. The interim effluent limits were removed as they expired on January 22, 2014, and are in effect when this modification is issued.

From Outfall #001, parameters that were not established in the Effluent Limit Guidelines, 40 CFR 421 were removed with the exception of chlorides and sulfates. This removed barium, selenium, cadmium, copper, iron, and mercury effluent limits and monitoring. Sulfate and chlorides were retained as these parameters are also parameters of concern at Buick Mine and the need to track the Resource Recycling facility's contribution.

Other changes includes on Outfall #003 composite sampling, as the previous permit said grab sampling in Table A but the note at the bottom of the page said composite sampling and Outfall 002 is no discharge for storm events. Effluent limits were removed from Outfall #002, as it is to be operated as no-discharge and if discharging, monitoring is required.

2013 Modification:
The antimony effluent limits were entered into Table A incorrectly during the December 5, 2012 modification. Under current production rates, antimony limits based on categorical limits for Nonferrous Metals Manufacturing, Primary and Secondary Lead Subcategories equal a daily maximum limit of 5.59 lbs/day and a monthly average limit of 2.28 lbs/day. Table A interim and final effluent limitations for outfalls #001 and #003 were changed to reflect this limit.

2012 Modification:
Outfall 001 has been relocated with the completion of the new treatment plant. The outfall will still drain to an Unnamed Tributary to Crooked Creek. The water will flow from this point of discharge past the Administration/Changehouse Building to the Unnamed Tributary to Crooked Creek. The water will flow directly into an inlet and not over the surface of the Administration/ Changehouse Building Area.

Along with moving Outfall 001, the area of the Administration/ Changehouse Building area and Employee Parking are being designated as No Exposure Areas. No industrial exposure or activities occur in this area. There is an alternate access to the Plant Area that is rarely used and then only for special construction projects for limited periods of time. Vehicles carrying used batteries, concentrate, or other routine deliveries do not use this entrance. On the occasions that this access is necessary, a person is stationed at the exit whose sole job is to wash tires, etc… of the vehicle before reentering the road into the Administration/Changehouse Building and the Employee Parking area. This best management practice is to be included in the SWPPP that was developed as part of this permit.

Stormwater from the Administration/Changehouse Building area and Employee Parking will be rerouted to overland flow in an area outside of any industrial activity. The benefit of segregating out the stormwater from the Administration/Changehouse Building area is that it will reduce the volume of water collected in stormwater collection tank and reduce the likelihood of discharges from Outfall 003. As part of this modification, the facility's SWPPP will be revised to reflect the change and the steps to keep industrial activities out of the Administration /Changehouse Building area and the overland flow system separate from the stormwater from the industrial area.

Application Date: 10/17/2013 Expiration Date: 01/23/2016 Last Inspection: 06/06/2012 In Compliance ☒;

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	2.689	Post secondary	Treated wastewater. Pretreatment plant, then piped to Buick Mine.	6.4 miles/ Piped to Buick Mine
002	variable	Physical settling	NO DISCHARGE. Overflow of earthen holding impoundment: stormwater.	5.8 miles*
003	variable	Physical settling	Overflow of concrete collection tank: industrial process wastewater, process stormwater and miscellaneous non-scope flows, treated sanitary wastewater, and secondary slag landfill leachate.	5.8 miles*
004	NA	NA	Former compliance point in Crooked Creek, now listed as S1	NA
005	0.047	Lagoon	Treated sanitary water from aerated lagoon. Internal sampling point	NA
S1	NA	NA	In-stream monitoring point	In classified section

*Approximate stream miles, straight-line distance is about 4.3 miles.

Part II – Receiving Stream Information

APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:
As per Missouri's Effluent Regulations [10 CSR 20-7.015], the waters of the state are divided into seven (7) categories. Each category lists effluent limitations for specific parameters, which are presented in each outfall's Effluent Limitation Table and further discussed in the Derivation & Discussion of Limits section.

All Other Waters [10 CSR 20-7.015(8)]: ☒

10 CSR 20-7.031 Missouri Water Quality Standards, the Department defines the Clean Water Commission water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and 1st classified receiving stream's beneficial water uses to be maintained are located in the Receiving Stream Table located below in accordance with [10 CSR 20-7.031(3)].

RECEIVING STREAM(S) TABLE:

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC**
Tributary to Crooked Creek	U	--	General Criteria	07140102-0402
Crooked Creek	P	1928	AQL, CLF, LWW, WBC(B)	

* - Irrigation (IRR), Livestock & Wildlife Watering (LWW), Protection of Warm Water Aquatic Life and Human Health-Fish Consumption (AQL), Cool Water Fishery(CLF), Cold Water Fishery (CDF), Whole Body Contact Recreation (WBC), Secondary Contact Recreation (SCR), Drinking Water Supply (DWS), Industrial (IND), Groundwater (GRW). ** - Hydrologic Unit Code

RECEIVING STREAM(S) LOW-FLOW VALUES TABLE:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Tributary to Crooked Creek (U)	0.0	0.0	0.0
Crooked Creek (P)	0.1	0.1	1.0

MIXING CONSIDERATIONS TABLE:
Mixing Zone: Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(a)].
Zone of Initial Dilution: Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(b)].

RECEIVING STREAM MONITORING REQUIREMENTS:
With the 2014 modification, instream monitoring is retained for the following reasons: the stream is on the 303(d) list for impairments from this facility and industrial stormwater discharges still occur to Crooked Creek that in the past have been toxic to aquatic life. The instream monitoring requirement will be reevaluated at renewal of the permit, which is almost two years after the planned removal of the process water discharge to Crooked Creek

Site 01. (Downstream)

PARAMETER(S)	UNITS	SAMPLING FREQUENCY	SAMPLE TYPE	LOCATION
Flow	MGD	once/month	24 hr. estimate	Low water bridge crossing Crooked Creek. UTM Coordinates: X=658940, Y=4175370 Legal Description: NW¼, NW ¼, Sec. 31, T35N, R2W, Crawford County
Sulfate	µg/L	once/month	grab	
Arsenic, dissolved	µg/L	once/month	grab	
Cadmium, dissolved	µg/L	once/month	grab	
Copper, dissolved	µg/L	once/month	grab	
Lead, dissolved	µg/L	once/month	grab	
Zinc, dissolved	µg/L	once/month	grab	

Part III – Rationale and Derivation of Effluent Limitations & Permit Conditions

ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:
As per [10 CSR 20-7.015(4)(A)], discharges to losing streams shall be permitted only after other alternatives including land application, discharges to a gaining stream and connection to a regional wastewater treatment facility have been evaluated and determined to be unacceptable for environmental and/or economic reasons.

Not Applicable ☒: The facility does not discharge to a Losing Stream as defined by [10 CSR 20-2.010(36)] & [10 CSR 20-7.031(1)(N)], or is an existing facility.

ANTI-BACKSLIDING:
A provision in the Federal Regulations [CWA §303(d)(4); CWA §402(c); 40 CFR Part 122.44(I)] that requires a reissued permit to be as stringent as the previous permit with some exceptions.

Applicable ☒: Limitations in this operating permit for the reissuance of this permit conform to the anti-backsliding provisions of Section 402(o) of the Clean Water Act, and 40 CFR Part 122.44. Outfall #001 previously had water quality based effluent limits for its discharge to Tributary to Crooked Creek. As part of the 2014 modification, Outfall #001 becomes an internal compliance point to monitor compliance with 40 CFR 421.73(d) and 421.134effluent limit guidelines as the final discharge location is at Buick Mine/Mill's Outfall #002 discharge to Tributary to Strother Creek (MO-0002003). At the final discharge location at Buick Mine, the effluent of both the Recycling Facility and the Mine must be in compliance with water quality standards. WET test

ANTIDEGRADATION:
In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(2)], the Department is to document by means of Antidegradation Review that the use of a water body's available assimilative capacity is justified. Degradation is justified by documenting the socio-economic importance of a discharging activity after determining the necessity of the discharge.

Applicable ☒: New and/or expanded discharge, please see **APPENDIX A: ANTIDEGRADATION ANALYSIS.** An Antidegradation Review was conducted for Buick Mine/Mill and Buick Resource Recycling Facility for increase flows at the Mine Discharge, and at the Recycling Facility for compliance with 40 CFR 421.73(d) and 421.134, the effluent limit guidelines at Outfall #001.

BIOSOLIDS & SEWAGE SLUDGE:
Biosolids are solid materials resulting from domestic wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sewage sludge is solids, semi-solids, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works. Additional information regarding biosolids and sludge is located at the following web address: http://dnr.mo.gov/env/wpp/pub/index.html, items WQ422 through WQ449.

Not Applicable ☒: This condition is not applicable to the permittee for this facility.

COMPLIANCE AND ENFORCEMENT:
Enforcement is the action taken by the Water Protection Program (WPP) to bring an entity into compliance with the Missouri Clean Water Law, its implementing regulations, and/or any terms and conditions of an operating permit. The primary purpose of the enforcement activity in the WPP is to resolve violations and return the entity to compliance.

Not Applicable ☒: The permittee/facility is not currently under Water Protection Program enforcement action.

REASONABLE POTENTIAL ANALYSIS (RPA):
Federal regulation [40 CFR Part 122.44(d)(1)(i)] requires effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above narrative or numeric water quality standard. In accordance with [40 CFR Part 122.44(d)(iii)] if the permit writer determines that any give pollutant has the reasonable potential to cause, or contribute to an in-stream excursion above the WQS, the permit must contain effluent limits for that pollutant.

Not Applicable ☒: A RPA was not conducted for this facility as the discharge from Outfall #001 is an internal compliance point as the facility sends the process water from #001 to Buick Mine/Mill for further treatment/ reuse and ultimate discharge.

SCHEDULE OF COMPLIANCE (SOC):
A schedule of remedial measures included in a permit, including an enforceable sequence of interim requirements (actions, operations, or milestone events) leading to compliance with the Missouri Clean Water Law, its implementing regulations, and/or the terms and conditions of an operating permit.

Not Applicable ☒: This permit does not contain a SOC. This permit previously contained a schedule of compliance for meeting water quality based effluent limits at Outfalls #001, and #002. This led the facility to construct a new water treatment plant at Outfall #001.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP):
In accordance with 40 CFR 122.44(k) *Best Management Practices (BMPs)* to control or abate the discharge of pollutants when: (1) Authorized under section 304(e) of the Clean Water Act (CWA) for the control of toxic pollutants and hazardous substances from ancillary industrial activities: (2) Authorized under section 402(p) of the CWA for the control of storm water discharges; (3) Numeric effluent limitations are infeasible; or (4) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

In accordance with the EPA's *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (Document number EPA 833-B-09-002) [published by the United States Environmental Protection Agency (USEPA) in February 2009], BMPs are measures or practices used to reduce the amount of pollution entering (regarding this operating permit) waters of the state. BMPs may take the form of a process, activity, or physical structure. Additionally in accordance with the Storm Water Management, a SWPPP is a series of steps and activities to (1) identify sources of pollution or contamination, and (2) select and carry out actions which prevent or control the pollution of storm water discharges.

Applicable ☒: A SWPPP shall be developed and implemented for each site and shall incorporate required practices identified by the Department with jurisdiction, incorporate erosion control practices specific to site conditions, and provide for maintenance and adherence to the plan.

SPILL REPORTING:
Per 10 CSR 24-3.010, any emergency involving a hazardous substance must be reported to the department's 24 hour Environmental Emergency Response hotline at (573) 634-2436 at the earliest practicable moment after discovery. The department may require the submittal of a written report detailing measures taken to clean up a spill. These reporting requirements apply whether or not the spill results in chemicals or materials leaving the permitted property or reaching waters of the state. This requirement is in addition to the Noncompliance Reporting requirement found in Standard Conditions Part I.

VARIANCE:
As per the Missouri Clean Water Law § 644.061.4, variances shall be granted for such period of time and under such terms and conditions as shall be specified by the commission in its order. The variance may be extended by affirmative action of the commission. In no event shall the variance be granted for a period of time greater than is reasonably necessary for complying with the Missouri Clean Water Law §§644.006 to 644.141 or any standard, rule or regulation promulgated pursuant to Missouri Clean Water Law §§644.006 to 644.141.

Not Applicable ☒: This operating permit is not drafted under premises of a petition for variance.

WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:
As per [10 CSR 20-2.010(78)], the amount of pollutant each discharger is allowed by the Department to release into a given stream after the Department has determined total amount of pollutant that may be discharged into that stream without endangering its water quality.

Applicable ☒: Wasteload allocations were calculated where applicable using water quality criteria or water quality model results and the dilution equation below:

$$C = \frac{(C_s \times Q_s) + (C_e \times Q_e)}{(Q_e + Q_s)}$$ (EPA/505/2-90-001, Section 4.5.5)

Where C = downstream concentration
C_s = upstream concentration
Q_s = upstream flow
C_e = effluent concentration
Q_e = effluent flow

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID). Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

Number of Samples "n":
Additionally, in accordance with the TSD for water quality-based permitting, effluent quality is determined by the underlying distribution of daily values, which is determined by the Long Term Average (LTA) associated with a particular Wasteload Allocation (WLA) and by the Coefficient of Variation (CV) of the effluent concentrations. Increasing or decreasing the monitoring frequency does not affect this underlying distribution or treatment performance, which should be, at a minimum, be targeted to comply with the values dictated by the WLA. Therefore, it is recommended that the actual planned frequency of monitoring normally be used to determine the value of "n" for calculating the AML. However, in situations where monitoring frequency is once per month or less, a higher value for "n" must be assumed for AML derivation purposes. Thus, the statistical procedure being employed using an assumed number of samples is "n = 4" at a minimum. For Total Ammonia as Nitrogen, "n = 30" is used.

WLA MODELING:
There are two general types of effluent limitations, technology-based effluent limits (TBELs) and water quality based effluent limits (WQBELs). If TBELs do not provide adequate protection for the receiving waters, then WQBEL must be used.

Not Applicable ☒: A WLA study was either not submitted or determined not applicable by Department staff.

WATER QUALITY STANDARDS:
Per [10 CSR 20-7.031(3)], General Criteria shall be applicable to all waters of the state at all times including mixing zones. Additionally, [40 CFR 122.44(d)(1)] directs the Department to establish in each NPDES permit to include conditions to achieve water quality established under Section 303 of the Clean Water Act, including State narrative criteria for water quality.

WHOLE EFFLUENT TOXICITY (WET) TEST:
A WET test is a quantifiable method of determining if a discharge from a facility may be causing toxicity to aquatic life by itself, in combination with or through synergistic responses when mixed with receiving stream water.

Applicable ☒: In accordance with the Clean Water Act (CWA) §101(a)(3), requiring WET testing is reasonably appropriate for site-specific Missouri State Operating Permits for discharges to waters of the state issued under the National Pollutant Discharge Elimination System. Furthermore, WET testing is a means by which the department determines that [10 CSR 20-7.031(3)(D, F, & G)] are being met by the permitted facility. In addition to justification for the WET testing, WET tests are required under [10 CSR 20-6.010(8)(A)4] to be performed by specialists who are properly trained in conducting the test according to the methods prescribed by the Federal Government as referenced in [40 CFR Part 136]. WET test will be required by all facilities meeting the following criteria:

☒ Facility is a designated Major.
☐ Facility continuously or routinely exceeds its design flow.
☐ Facility that exceeds its design population equivalent (PE) for BOD_5 whether or not its design flow is being exceeded.
☐ Facility (whether primarily domestic or industrial) that alters its production process throughout the year.
☒ Facility handles large quantities of toxic substances, or substances that are toxic in large amounts.
☒ Facility has Water Quality-based Effluent Limitations for toxic substances (other than NH_3)
☐ Facility is a municipality with a Design Flow ≥ 22,500 gpd.
☐ Other – please justify.

At this time, the permittee is not required to conduct WET test for on Outfall #001. WET test requirements were removed from Outfall #001 as Outfall #001 is an internal pretreatment facility and the final discharge location is Outfall #001 at Buick Mine/Mill on a Tributary to Strother Creek. Permit previously had quarterly chronic WET tests, which Buick Mine/Mill also has and retains with their modification for the flows from the Recycling Facility. WET test requirements remain on Outfall #003

303(d) LIST & TOTAL MAXIMUM DAILY LOAD (TMDL):
Section 303(d) of the federal Clean Water Act requires that each state identify waters that are not meeting water quality standards and for which adequate water pollution controls have not been required. Water quality standards protect such beneficial uses of water as whole body contact (such as swimming), maintaining fish and other aquatic life, and providing drinking water for people, livestock and wildlife. The 303(d) list helps state and federal agencies keep track of waters that are impaired but not addressed by normal water pollution control programs. A TMDL is a calculation of the maximum amount of a given pollutant that a body of water can absorb before its water quality is affected. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan will be developed that shall include the TMDL calculation

Applicable ☒:Crooked Creek is listed on the 2006 Missouri 303(d) List for cadmium and lead.
☒ – This facility is thought to have contributed to pollutant loadings that may have caused or contributed to the impairment of the stream with the above listed pollutant(s). With the piping of Outfall #001 to the Buick Mine, this removes the process outfall discharge to Crooked Creek from Buick Recycling and only leaves stormwater discharges.

Part IV – Effluent Limits Determination

***Outfall #001* – Pretreatment Plant Prior to Discharge at Buick Mine/Mill (MO-0002003)**
Effluent limitations derived and established in the below Effluent Limitations Table are based on current operations of the facility. Future permit action due to facility modification may contain new operating permit terms and conditions that supersede the terms and conditions, including effluent limitations, of this operating permit.

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMIT
FLOW	MGD	*		*	N	
PH - UNITS	SU	7.5-10.0		7.5-10.0	N	
TOTAL SUSPENDED SOLIDS	lbs/day	127		85	N	
CHLORIDE	mg/L	*		*	Y	SULFATE + CHLORIDES
SULFATE	mg/L	*		*	Y	
ANTIMONY	lbs/day	5.59		2.28	N	
ARSENIC, TOTAL RECOVERABLE	lbs/day	4.03		1.61	Y	0.28/0.14
LEAD, TOTAL RECOVERABLE	lbs/day	2.44		1.09	Y	0.18/0.09
ZINC, TOTAL RECOVERABLE	lbs/day	8.89		3.43	Y	2.6/1.3

* - Monitoring requirement only.

OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:

- **Flow**. In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the department, which may require the submittal of an operating permit modification.

- **pH.** The categorical effluent limit requires a pH to be maintained in the range of seven and a half to ten (7.5-10.0) standard units.

- **Total Suspended Solids (TSS).** The categorical effluent limit in 40 CFR 440.102(b) requires a TSS maximum daily mass loading of 127 lbs/day and a monthly average of 85 lbs/day. Antidegradation Review lists concentration limits for TSS, which is incorrect for Buick Resource Recycling.

- **Antimony, Total Recoverable.** The categorical effluent limit calculated in Appendix B of the Antidegradation Review, pg. 32 of this factsheet, is applicable. The antimony maximum daily concentration is 5.59 lbs/day and the monthly average is 2.28 lbs/day.

- **Arsenic, Total Recoverable.** The categorical effluent limit calculated in Appendix B of the Antidegradation Review, pg. 32 of this factsheet, is applicable. The antimony maximum daily concentration is 4.03 lbs/day and the monthly average is 1.61 lbs/day.

- **Lead, Total Recoverable.** The categorical effluent limit calculated in Appendix B of the Antidegradation Review, pg. 32 of this factsheet, is applicable. The antimony maximum daily concentration is 2.44 lbs/day and the monthly average is 1.09 lbs/day.

- **Zinc, Total Recoverable.** The categorical effluent limit calculated in Appendix B of the Antidegradation Review, pg. 32 of this factsheet, is applicable. The zinc maximum daily concentration is 8.89 lbs/day and the monthly average is 3.43 lbs/day.

- **Sulfates as SO_4.** Monitoring only to determine contribution from Buick Resource Recycling. Parameter identified at both Buick Resource and Buick Mine/Mill.

- **Chlorides.** Monitoring only to determine contribution from Buick Resource Recycling. Parameter identified at both Buick Resource and Buick Mine/Mill.

Outfall #002 – No Discharge Basin **Industrial Stormwater**

OUTFALL #002 – DERIVATION AND DISCUSSION OF LIMITS:

Emergency overflow outfall #002. Emergency overflow from stormwater retention basin, Impoundment E. Stormwater flows from equipment storage, flux storage, the former Magmont mill area, and unused property. The retention basin will be operated in a no-discharge fashion by pumping to the plant water make-up tanks for reuse and/or the treatment plant. Flows in excess of the pumping capacity may be discharged in accordance with the effluent limitations provided the excess flow is being generated by a 1-in-10 year storm event (rainfall exceeding 5.5 inches in a 24 hour period). In the event of an overflow, monitoring only for the parameters of concern (Flow, Total Suspended Solids, pH – Units, Cadmium- Total Recoverable, Copper - Total Recoverable, Lead - Total Recoverable, Zinc - Total Recoverable) are proposed to determine the frequency and extent of emergency overflows to be evaluated during the next permit cycle. The facility will normally be operated in a no-discharge manner unless flows exceed pumping capacity. Monitoring and limitations are based on 40 CFR 440.

Outfall #003 – Industrial Stormwater, Emergency Spillway

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	NO	
PH	SU	1	7.5-9.0		7.5-9.0	NO	7.5-10.0
TSS	lbs/day	1	127		85	YES	283/162 LBS/DAY
SULFATE PLUS CHLORIDE	mg/L	1, 9	1000		NA	YES	NO LIMITATION
ARSENIC, TOTAL RECOVERABLE	lbs/day µg/L	1, 2, 3	0.28 33		0.14 16	YES	3.34/1.70 LBS/DAY NO WQBEL
CADMIUM, TOTAL RECOVERABLE	µg/L	2, 3	1.0		0.5	YES	PREVIOUSLY CATEGORICAL AND WITH 100 µg/L DAILY MAX.
COPPER, TOTAL RECOVERABLE	µg/L	2, 3	39.8		19.8	YES	PREVIOUSLY CATEGORICAL AND WITH 88 µg/L DAILY MAX.
IRON, TOTAL RECOVERABLE	µg/L	2,3	1,639		817	YES	NO LIMITATION
LEAD, TOTAL RECOVERABLE	lbs/day µg/L	1, 2, 3	0.18 21.4		0.09 10.6	YES	2.58/1.05 LBS/DAY 190 µg/L DAILY MAX
ZINC, TOTAL RECOVERABLE	lbs/day µg/L	1, 2, 3	2.6 307.3		1.3 153.1	YES	9.38/3.07 LBS/DAY 2,120 µg/L DAILY MAX
ANTIMONY, TOTAL RECOVERABLE	lbs/day	1	3.49		1.46	YES	6.900/4.600 LBS/DAY
BARIUM, TOTAL RECOVERABLE	µg/L	9	*		*	NO	
SELENIUM, TOTAL RECOVERABLE	µg/L	9	*		*	NO	
WET TEST	% Survival	11				NO	

* - Monitoring requirement only.

Basis for Limitations Codes:

1. State or Federal Regulation/Law
2. Water Quality Standard (includes RPA)
3. Water Quality Based Effluent Limits
4. Lagoon Policy
5. Ammonia Policy
6. Dissolved Oxygen Policy
7. Antidegradation Policy
8. Water Quality Model
9. Best Professional Judgment
10. TMDL or Permit in lieu of TMDL
11. WET Test Policy
12. Antidegradation Review

OUTFALL #003 – DERIVATION AND DISCUSSION OF LIMITS:

- **Flow**. In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the department, which may require the submittal of an operating permit modification.

- **Biochemical Oxygen Demand (BOD_5) and Ammonia.** Limits on previous permit have been removed and limits have been established for outfall 005.

- **Total Suspended Solids (TSS).** Effluent limitations from the previous state operating permit of 283 lbs/day daily maximum and 162 lbs/day monthly average have been reassessed. Categorical limits for the secondary lead smelter industry assume that best available technology can treat TSS in wastewater to concentrations of 15 mg/L daily maximum and 10 mg/L monthly average (Table VII-21, page 248, Development Document for Effluent Limitations Guidelines and Standards for the Nonferrous Metals Manufacturing Point Source Category, Final, Volume 1, EPA 1989). The Guidelines also specify that best professional judgment should be used when addressing stormwater. The majority of wastewater treated at the Buick Resource Recycling Facility and discharged through Outfall #001 is stormwater. There are no water quality criteria for TSS on which to base water quality based effluent limits, other than the narrative criteria. Effluent limits of 15mg/L daily max and 10 mg/L monthly average have been demonstrated to be protective of narrative criteria in nearly all settings in Missouri. Therefore, the calculations below apply the 15/10 levels to the design flow for the facility. The resulting limits are now less than one-half the previous limits and, therefore, more protective.

  MDL = 15 mg/L x (1.0152 MGD) x (8.34 conversion factor) = 127 lbs/day

AML = 10 mg/L x (1.0152 MGD) x (8.34 conversion factor) = 85 lbs/day

- **pH**. Effluent limitations are based on both the Categorical limit and Water Quality Standards. The Categorical Limit is 7.5 to 10.0, and the regulation 10 CSR 20 – 7.031(4) (E) requires discharges to not cause receiving streams to exceed 9.0 pH units. So, the limitation for outfall 001 is 7.5 to 9.0 pH units.

- **Sulfate and Chloride for Protection of Aquatic Life**. The water quality criteria for sulfate and chloride are listed in 10 CSR 20-7.031 (4) (L) 1. The permit application includes a test result for sulfate of 3054 mg/L for outfall 001. Expressed as chloride plus sulfate, the concentration shall not exceed 1000 mg/L. As our single data point is well above the water quality criterion, this pollutant is included in the permit limits.

  MDL = 1000 mg/L for Chloride as Cl plus Sulfate as SO_4
  AML = NA

  Metals
  Effluent limitations for total recoverable metals were developed using methods and procedures outlined in EPA/505/2-90-001 and "The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion" (EPA 823-B-96-007). General warm-water fishery criteria apply and water hardness = 304 mg/L. The Water Protection Program of the Department of Natural Resources has obtained hardness data for the first classified section of Crooked Creek. The 304 mg/L hardness represents the 25th percentile of eleven hardness readings obtained by the department.

  Due to the absence of contemporaneous effluent and in-stream data for total recoverable metals, dissolved metals, hardness, and total suspended solids with which to calculate metals translators, partitioning between the dissolved and absorbed phases was assumed to be minimal (Section 5.7.3, EPA/505/2-90-001). Freshwater criteria conversion factors for dissolved metals were used as the metals translator as recommended in guidance (Section 1.3, 1.5.3, and Table 1, EPA 823-B-96-007). If concurrent site-specific data for total recoverable metals, dissolved metals, hardness, and total suspended solids are provided to the Department, partitioning evaluations may be considered and site-specific translators developed.

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Arsenic	1.000	1.000
Cadmium	0.897	0.862
Copper	0.960	0.960
Iron	NA	1.000
Lead	0.629	0.629
Silver	0.850	NA
Zinc	0.978	0.986

Conversion factors for Cadmium and Lead are hardness dependent. Values calculated using equation found in Section 1.3 of EPA 823-B-96-007 and hardness = 304 mg/L.

And, solving for Ce, effluent concentration (used below):

Ce= ((Qe + Qs) x C – (Cs x Qs))/Qe

The design flow of 1.015 MGD is used. The flow units cancel out.

- **Antimony (Sb), Total Recoverable,** There is no Protection of Aquatic Life Chronic (or Acute) Criteria and the other criteria for Antimony are not applied because the receiving stream is unclassified, and the discharge point is 5.8 miles to the classified section. A mass limit is developed in the table Calculation of Categorical Limits.

- **Arsenic (As), Total Recoverable**. Protection of Aquatic Life Chronic Criteria = 20 µg/L, Acute Criteria = NA µg/L.
  Chronic =20/1.000 = 20 µg/L
  Acute = NA

  Chronic WLA: C_e = ((1.015 + 0.0) x 20 – (0.0 x 0.0))/ 1.015 C_e = 20 µg/L
  Acute WLA: C_e = NA

  LTA_c = 20 (0.527) = **10.5 µg/L** [CV = 0.6, 99th Percentile]

LTA_a = NA [CV = 0.6, 99th Percentile]
MDL = 10.5 (3.11) = 33 µg/L [CV = 0.6, 99th Percentile]
AML = 10.5 (1.55) = 16 µg/L [CV = 0.6, 95th Percentile, n = 4]

MDL = 33 µg/L x (1.0152 MGD) x (8.34/1000 conversion factor) = 0.28 lbs/day
AML = 16 µg/L x (1.0152 MGD) x (8.34/1000 conversion factor) = 0.14 lbs/day

- **Cadmium (Cd), Total Recoverable**. Protection of Aquatic Life Chronic Criteria = 0.5 µg/L, Acute Criteria = 14.0 µg/L.

Chronic =0.5/0.862 = 0.6 µg/L Chronic WLA: = 0.6 µg/L
Acute = 14.0/0.897 = 15.6 µg/L Acute WLA: = 15.6 µg/L

LTA_c = 0.6 (0.527) = 0.3 µg/L [CV = 0.6, 99th Percentile]
LTA_a = 15.6 (0.321) = 5.0 µg/L [CV = 0.6, 99th Percentile]
MDL = 0.3 (3.11) = 1.0 µg/L [CV = 0.6, 99th Percentile]
AML = 0.3 (1.55) = 0.5 µg/L [CV = 0.6, 95th Percentile, n = 4]

- **Copper (Cu), Total Recoverable**. Protection of Aquatic Life Chronic Criteria = 23.2 µg/L, Acute Criteria = 38.3 µg/L.

Chronic = 23.2/0.960 = 24.2 µg/L Chronic WLA: = 24.2 µg/L
Acute = 38.3/0.960 = 39.9 µg/L Acute WLA: = 39.9 µg/L

LTA_c = 24.2 (0.527) = 12.8 µg/L [CV = 0.6, 99th Percentile]
LTA_a = 39.9 (0.321) = 12.8 µg/L [CV = 0.6, 99th Percentile]
MDL = 12.8 (3.11) = 39.8 µg/L [CV = 0.6, 99th Percentile]
AML = 12.8 (1.55) = 19.8 µg/L [CV = 0.6, 95th Percentile, n = 4]

- **Iron (Fe), Total Recoverable**. Protection of Aquatic Life Chronic Criteria = 1,000 µg/L. During an inspection on June 23, 2010 the Permit Writer witnessed significant iron staining of riprap below outfall 003. Doe Run staff indicated this was due to previously undisclosed use of high amounts of Ferric Chloride during the treatment process, although Iron was marked as "believed present" on application form C. The amount of iron staining indicates this facility has the reasonable potential to violate water quality standards. The analysis submitted by the permittee was non-detect at less than 50 µg/L, and the amount of Iron added to the effluent is controlled by the permittee. Therefore the facility is capable of complying with effluent now, and no schedule of compliance is allowed.

Chronic 1000/1.0=1000
Chronic WLA: $C_e = ((1.015+ 0.0) \times 1000 – (0.0 \times 0.0))/ 1.015$ C_e = 1000 µg/L

LTA_c = 1000 (0.527) = 527 µg/L [CV = 0.6, 99th Percentile]
MDL = 527 (3.11) = 1639 µg/L [CV = 0.6, 99th Percentile]
AML = 527 (1.55) = 817 µg/L [CV = 0.6, 95th Percentile, n = 4]

- **Lead (Pb), Total Recoverable**. Protection of Aquatic Life Chronic Criteria = 8.2 µg/L, Acute Criteria = 211 µg/L.

Chronic = 8.2/0.629 = 13.0 µg/L Chronic WLA: = 13.0 µg/L
Acute = 211/0.629 = 336.1 µg/L Acute WLA: = 336.1 µg/L

LTA_c = 13.0 (0.527) = 6.9 µg/L [CV = 0.6, 99th Percentile]
LTA_a = 336.1 (0.321) = 107.9 µg/L [CV = 0.6, 99th Percentile]
MDL = 6.9 (3.11) = 21.4 µg/L [CV = 0.6, 99th Percentile]
AML = 6.9 (1.55) = 10.6 µg/L [CV = 0.6, 95th Percentile, n = 4]

MDL = 21.4 µg/L x (1.0152 MGD) x (8.34/1000 conversion factor) = 0.18 lbs/day
AML = 10.6 µg/L x (1.0152 MGD) x (8.34/1000 conversion factor) = 0.09 lbs/day

- **Zinc (Zn), Total Recoverable**. Protection of Aquatic Life Chronic Criteria = 301 µg/L, Acute Criteria = 301 µg/L.

Chronic = 301/0.986 = 305.3 µg/L Chronic WLA: = 305.3 µg/L
Acute = 301/0.978 = 307.8 µg/L Acute WLA: = 307.8 µg/L

LTA_c = 305.3 (0.527) = 160.9 µg/L [CV = 0.6, 99th Percentile]
LTA_a = 307.8 (0.321) = 98.8 µg/L [CV = 0.6, 99th Percentile]
MDL = 98.8 (3.11) = 307.3 µg/L [CV = 0.6, 99th Percentile]
AML = 98.8 (1.55) = 153.1 µg/L [CV = 0.6, 95th Percentile, n = 4]

MDL = 307.3 µg/L x (1.0152 MGD) x (8.34/1000 conversion factor) = 2.60 lbs/day
AML = 153.1 µg/L x (1.0152 MGD) x (8.34/1000 conversion factor) = 1.30 lbs/day

- **WET Test**. WET Testing schedules and intervals are established in accordance with the Department's Permit Manual; Section 5.2 *Effluent Limits / WET Testing for Compliance Bio-monitoring.* It is recommended that WET testing be conducted during the period of lowest stream flow.
  - ☒ Acute
    - ☒ No less than **ONCE/QUARTER, WHEN DISCHARGING:**
      - ☒ Facility is designated as a Major facility or has a design flow ≥ 1.0 MGD.
      - ☒ Facility has Water Quality-based effluent limitations for toxic substances (other than NH_3).
      - ☒ Facility handles large quantities of toxic substances, or substances that are toxic in large amounts.

Acute and/or Chronic Allowable Effluent Concentrations (AECs) for facilities that discharge to unclassified streams are 100%, 50%, 25%, 12.5%, & 6.25%.

Comparison of Water-Quality Based Effluent Limits (WQBELs) to Categorical Limits. A comparison can be made of the categorical limits and the WQBELs, and converting the units to pounds per day (lb/day). For the final effluent limits of outfall 003:

	Daily Maximum, lb/day	Monthly average, lb/day
Antimony:		
Categorical limit –	**5.59**	**2.28**
Water-quality based limit-	**N.A.**	**N.A.**
Arsenic:		
Categorical limit –	4.03	1.61
Water-quality based limit-	**0.28**	**0.14**
Lead:		
Categorical limit –	2.44	1.09
Water-quality based limit-	**0.18**	**0.09**
Zinc:		
Categorical limit –	8.89	3.43
Water-quality based limit-	**2.6**	**1.3**

The more restrictive limit is in bold.

The WQBEL is more restrictive for Arsenic, Lead and Zinc. Therefore this WQBEL-derived mass limit is substituted for the categorical limit as the mass effluent limit for Outfall #003.

Outfall #005- Internal Compliance Point: Domestic Wastewater Lagoon

Effluent limitations derived and established in the below Effluent Limitations Table are based on current operations of the facility. Future permit action due to facility modification may contain new operating permit terms and conditions that supersede the terms and conditions, including effluent limitations, of this operating permit.

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	FREQUENCY
FLOW	MGD	1	*		*	***	ONCE/QUARTER
BOD_5	MG/L	1		65	45	***	ONCE/QUARTER
TSS	MG/L	1		120	80	***	ONCE/QUARTER
AMMONIA AS N (SUMMER)	MG/L	3	3.7		1.9	***	ONCE/QUARTER
AMMONIA AS N (WINTER)	MG/L	3	7.5		2.8	***	ONCE/QUARTER
PH - UNITS	SU	1	≥6.5			***	ONCE/QUARTER

* - Monitoring requirement only.
***- Parameter not previously established. Established at permit renewal in 2011.

Basis for Limitations Codes:

1. State or Federal Regulation/Law
2. Water Quality Standard (includes RPA)
3. Water Quality Based Effluent Limits
4. Lagoon Policy
5. Ammonia Policy
6. Dissolved Oxygen Policy
7. Antidegradation Policy
8. Water Quality Model
9. Best Professional Judgment
10. TMDL or Permit in lieu of TMDL
11. WET Test Policy
12. Antidegradation Review

OUTFALL #005 – DERIVATION AND DISCUSSION OF LIMITS:

- **Flow**. In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the department, which may require the submittal of an operating permit modification.

- **Biochemical Oxygen Demand (BOD_5).** Effluent limitations are taken from 10 CSR 20 – 7.015 (8) (B) 3. BOD and TSS limitations for the lagoon are moved from outfall 001to the new internal outfall 005 in this permit. The limitations are more restrictive than the previous permit because the average flow at outfall 005 is less than 10% of the flow at outfall 001, and the discharge from outfall 005 goes to outfall 001. For example: Using the average flows reported in the permit application and the weekly average limit, the mass of BOD discharged allowed in the new permit is: (65 mg/L) x (.03024 MGD) x (8.34 conversion factor) = 16.4 lb/day BOD discharge from outfall 005
  Using the limitations from the previous permit and the average flow at outfall 001;
  (45 mg/L) x (.331 MGD) x (8.34 conversion factor) = 124.2 lb/day BOD discharge from outfall 001

  So, the new permit is more restrictive than the previous permit, since the source of BOD is the sanitary wastewater treated in the lagoon.

- **Total Suspended Solids (TSS).** Effluent limitations are taken from 10 CSR 20 – 7.015 (8) (B) 3. TSS limitations for the lagoon are moved from outfall 001to the new internal outfall 005 in this permit.

- **pH**. Effluent limitations are taken from 10 CSR 20 – 7.015 (8) (B) 3. pH is not to be averaged and shall be maintained >6.5 SU.

- **Ammonia** The ammonia allowance from the categorical standard is 0.000 lbs/day (from the table Calculation of Categorical Limits). Water quality based effluent limitations for outfall #005, is determined as follows: Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3] default pH 7.8 SU No mixing considerations allowed; therefore, WLA = appropriate criterion.

Season	Temp (^oC)	pH (SU)	Total Ammonia Nitrogen CCC (mg N/L)	Total Ammonia Nitrogen CMC (mg N/L)
Summer	26	7.8	1.5	12.1
Winter	6	7.8	3.1	12.1

Summer: April 1 – September 30; Winter: October 1 – March 31.

SUMMER

WLA_c = 1.5 mg/l
WLA_a = 12.1 mg/l
LTA_c = 1.5 mg/L (0.780) = **1.2 mg/L** [CV = 0.6, 99th Percentile, 30 day avg.]
LTA_a = 12.1 mg/L (0.321) = 3.88 mg/L [CV = 0.6, 99th Percentile]
MDL = 1.2 mg/L (3.11) = **3.7 mg/L** [CV = 0.6, 99th Percentile]
AML = 1.2 mg/L (1.55) = **1.9 mg/L** [CV = 0.6, 95th Percentile, n = 4]

WINTER

WLA_c = 3.1 mg/l
WLA_a = 12.1 mg/l
LTA_c = 3.1 mg/L (0.780) = **2.4 mg/L** [CV = 0.6, 99th Percentile, 30 day avg.]
LTA_a = 12.1 mg/L (0.321) = 3.9 mg/L [CV = 0.6, 99th Percentile]
MDL = 2.4 mg/L (3.11) = **7.5 mg/L** [CV = 0.6, 99th Percentile]
AML = 2.4 mg/L (1.19) = **2.8 mg/L** [CV = 0.6, 95th Percentile, n = 4]

Season	Maximum Daily Limit (mg/l)	Average Monthly Limit (mg/l)
Summer	3.7	1.9
Winter	7.5	2.8

Part V –2013 Water Quality Criteria for Ammonia

Upcoming changes to the Water Quality Standard for ammonia may require significant upgrades to wastewater treatment facilities.

On August 22, 2013, the U.S. Environmental Protection Agency (EPA) finalized new water quality criteria for ammonia, based on toxicity studies of mussels and gill breathing snails. Missouri's current ammonia criteria are based on toxicity testing of several species, but did not include data from mussels or gill breathing snails. Missouri is home to 69 of North America's mussel species, which are spread across the state. According to the Missouri Department of Conservation nearly two-thirds of the mussel species in Missouri are considered to be "of conservation concern". Nine species are listed as federally endangered, with an additional species currently proposed as endangered and another species proposed as threatened.

The adult forms of mussels that are seen in rivers, lakes, and streams are sensitive to pollutants because they are sedentary filter feeders. They vacuum up many pollutants with the food they bring in and cannot escape to new habitats, so they can accumulate toxins in their bodies and die. But very young mussels, called glochidia, are exceptionally sensitive to ammonia in water. As a result of a citizen suit, the EPA was compelled to conduct toxicity testing and develop ammonia water quality criteria that would be protective if young mussels may be present in a waterbody. These new criteria will apply to any discharge with ammonia levels that may pose a reasonable potential to violate the standards. Nearly all discharging domestic wastewater treatment facilities (cities, subdivisions, mobile home parks, etc.), as well as certain industrial and stormwater dischargers with ammonia in their effluent, will be affected by this change in the regulations.

When new water quality criteria are established by the EPA, states must adopt them into their regulations in order to keep their authorization to issue permits under the National Pollutant Discharge Elimination System (NPDES). States are required to review their water quality standards every three years, and if new criteria have been developed they must be adopted. States may be more protective than the Federal requirements, but not less protective. Missouri does not have the resources to conduct the studies necessary for developing new water quality standards, and therefore our standards mirror those developed by the EPA; however, we will utilize any available flexibility based on actual species of mussels that are native to Missouri and their sensitivity to ammonia.

Many treatment facilities in Missouri are currently scheduled to be upgraded to comply with the current water quality standards. But these new ammonia standards may require a different treatment technology than the one being considered by the permittee. It is important that permittees discuss any new and upcoming requirements with their consulting engineers to ensure that their treatment systems are capable of complying with the new requirements. The Department encourages permittees to construct treatment technologies that can attain effluent quality that supports the EPA ammonia criteria.

Ammonia toxicity varies by temperature and by pH of the water. Assuming a stable pH value, but taking into account winter and summer temperatures, Missouri includes two seasons of ammonia effluent limitations. Current effluent limitations in this permit are:

Summer – 3.7 mg/L daily maximum, 1.9 mg/L monthly average.
Winter – 7.5 mg/L daily maximum, 3.7 mg/L monthly average.

Under the new EPA criteria, where mussels of the family Unionidae are present or expected to be present, the estimated effluent limitations for a facility in a location such as this, which discharges to a receiving stream with no mixing, will be:

Summer – 1.7 mg/L daily maximum, 0.6 mg/L monthly average.
Winter – 5.6 mg/L daily maximum, 2.1 mg/L monthly average.

Part VI– Administrative Requirements

On the basis of preliminary staff review and the application of applicable standards and regulations, the Department, as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions contained herein and within the operating permit. The proposed determinations are tentative pending public comment.

PERMIT SYNCHRONIZATION:
The Department of Natural Resources is currently undergoing a synchronization process for operating permits. Permits are normally issued on a five-year term, but to achieve synchronization many permits will need to be issued for less than the full five years allowed by regulation. The intent is that all permits within a watershed will move through the Watershed Based Management (WBM) cycle together will all expire in the same fiscal year. This will allow further streamlining by placing multiple permits within a smaller geographic area on public notice simultaneously, thereby reducing repeated administrative efforts. This will also allow the department to explore a watershed based permitting effort at some point in the future. Renewal applications must continue to be submitted within 180 days of expiration, however, in instances where effluent data from the previous renewal is less than three years old, that data may be re-submitted to meet the requirements of the renewal application. If the permit provides a schedule of compliance for meeting new water quality based effluent limits beyond the expiration date of the permit, the time remaining in the schedule of compliance will be allotted in the renewed permit.

Buick Resource Recycling is in the 8 digit HUC: 07140102 and its expected permit synchronization quarter is 2nd Quarter of 2018 (June 30, 2018).

PUBLIC NOTICE:
The Department shall give public notice that a draft permit has been prepared and its issuance is pending. Additionally, public notice will be issued if a public hearing is to be held because of a significant degree of interest in and water quality concerns related to a draft permit. No public notice is required when a request for a permit modification or termination is denied; however, the requester and permittee must be notified of the denial in writing.

The Department must issue public notice of a pending operating permit or of a new or reissued statewide general permit. The public comment period is the length of time not less than 30 days following the date of the public notice which interested persons may submit written comments about the proposed permit. For persons wanting to submit comments regarding this proposed operating permit, then please refer to the Public Notice page located at the front of this draft operating permit. The Public Notice page gives direction on how and where to submit appropriate comments.

The Public Notice period for this operating permit was from March 14, 2014 to April 14, 2014. Responses to the Public Notice of this operating permit warrant the modification of effluent limits and/or the terms and conditions of this permit. Outfall #002 was changed to a no discharge outfall with monitoring only requirements when discharging. Due to the major modifications of this permit, this operating permit is to be placed on Public Notice again, which is tentatively scheduled to begin in June 2014 or is in process.

☒ - The Public Notice period for this operating permit was from May 16, 2014 to June 16, 2014. No responses received.

DATE OF FACT SHEET: FEBRUARY 6, 2014, MAY 1, 2014

COMPLETED BY:
LEASUE MEYERS, EIT
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
leasue.meyers@dnr.mo.gov

APPENDIX A: ANTIDEGRADATION ANALYSIS:

Buick Mine/Mill, MO0002003
Buick Resource Recycling Facility, MO000337
Iron County

STATE OF MISSOURI
Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.mo.gov

OCT 30 2013

Mr. James Lanzafame, Environmental Health and Safety Manager
Doe Run Resource Recycling Division
PO Box 500
Viburnum, MO 65566

RE: Preliminary Determination on *Antidegradation Report for the proposed transfer of flows from Doe Run's Buick Resource Recycling Facility, MO-0000337, to Buick Mine/Mill, MO-0002003, Iron County*

Dear Mr. Lanzafame:

Enclosed please find the finalized Water Quality and Antidegradation Review (WQAR) for the Buick Resource Recycling Facility and Buick Mine/Mill in Iron County. The WQAR contains pertinent antidegradation review information based on the use of existing water quality, effluent limitations and monitoring requirements for the facility discharge. It was developed in accordance with 10 CSR 20-7.031, the Clean Water Commission approved *Missouri Antidegradation Rule and Implementation Procedure* (AIP) dated May 7, 2008, U.S. Environmental Protection Agency (US EPA) guidance, the applicant-supplied antidegradation review documentation, and the State of Missouri's effluent regulations (10 CSR 20-7.015). Please refer to the *General Assumptions of the Water Quality and Antidegradation Review* section of the enclosed WQAR. The WQAR is preliminary and subject to change as new information becomes available during future permit application processing.

Based on the Missouri Department of Natural Resources' (department's) initial review, preliminary determination is that the applicant-supplied antidegradation review documentation satisfies the requirements of the AIP. This WQAR/preliminary determination may be appealed within 30 days of this letter in accordance with the AIP Section II.F.4.

You may proceed with submittal of an application for an operating permit modification and antidegradation review public notice. These submittals must reflect the design flow, facility description, and general treatment components of this WQAR or this preliminary determination may have to be revisited.

Following the Department's public notice of draft Missouri State Operating Permit including the antidegradation review findings and preliminary determination, the Department will review any public notice comments received. If significant comments are made, the project may require another public notice and potentially another antidegradation review. If no comments are received or comments are resolved without another public notice, these findings and determinations will be considered final. Following issuance of the construction permit and completion of the actual facility construction, the Department will proceed with the issuance of the operating permit.

If you should have questions regarding the enclosed WQAR, please contact Ms. Leasue Meyers by telephone at (573) 751-7906, by e-mail at leasue.meyers@dnr.mo.gov, or by mail at the Missouri Department of Natural Resources, Water Protection Program, PO Box 176, Jefferson City, Missouri 65102-0176.

Sincerely,

WATER PROTECTION PROGRAM

Refaat Mefrakis, P.E., Chief
Engineering Section

RM:lm

Enclosure

c: Ms. Amanda Sappington, WPP
Mr. Robert Brundage, Newman, Comley, and Ruth

Water Quality and Antidegradation Review

For the Protection of Water Quality and Determination of Effluent Limits for Discharge to Strother Creek

by

Doe Run Buick Mine/Mill Treatment Facility

October 2013

Table of Contents

1. FACILITY INFORMATION

FACILITY NAME: Doe Run Buick Mine/Mill NPDES #: MO0002003

FACILITY TYPE/DESCRIPTION: Doe Run is proposing to combine flows from Buick Mine/Mill and Buick Resource Recycling Facility and to construct treatment facilities at Buick Mine/Mill to process and treat wastewater and stormwater flows from the two facilities. The proposed treatment technology is currently under review and may consist of chemical addition for precipitation, flocculation, and clarification. Flows will be routed to Buick Mine/Mill Outfall 002. The average flow at Outfall 002 is estimated to increase from 13.4 mgd to 13.8 mgd.

BUICK MINE/MILL MAIN DISCHARGE, OUTFALL #002

COUNTY:	Iron	UTM COORDINATES:	X= 671748; y= 4162105
12- DIGIT HUC:	11010007-0301	LEGAL DESCRIPTION:	NW ¼ , NW ¼, Sec.33, T33N, R01W
EDU*:	Ozark/Black/Current	ECOREGION:	Ozark/Highlands/ Current River Hills

Buick Resource Recycling Facility (MO0000337) Outfall 001 is a discharge from pretreatment facility, with an average flow of 0.396 MGD. The pretreatment facility includes the following unit processes:

1. Physical settling in the six million gallon above-ground concrete collection tank. The wastewater is then pumped into the wastewater treatment plant.
2. Chemical addition for coagulation and sedimentation of insoluble heavy metals.
3. pH adjustment
4. Mixing and clarification
5. Polishing Filter(s) before routing for final treatment

PRETREATMENT FACILITY, BUICK RESOURCE RECYCLING FACILITY, OUTFALL #001 (MO00000337)

COUNTY:	Iron	UTM COORDINATES:	X=664868; Y= 4166819
12- DIGIT HUC:	07140102-0402	LEGAL DESCRIPTION:	SE ¼, SW ¼, Sec. 14, T34N, R2W
EDU*:	Ozark/Meramec	ECOREGION:	Ozark/Highlands/ Meramec River Hills

* - Ecological Drainage Unit

2. WATER QUALITY INFORMATION

In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(2)] and federal antidegradation policy at Title 40 Code of Federal Regulation (CFR) Section 131.12 (a), the Missouri Department of Natural Resources (MDNR) developed a statewide antidegradation policy and corresponding procedures to implement the policy. A proposed discharge to a water body will be required to undergo a level of Antidegradation Review which documents that the use of a water body's available assimilative capacity is justified. Effective August 30, 2008, a facility is required to use *Missouri's Antidegradation Implementation Procedure (AIP)* for new and expanded wastewater discharges.

2.1. WATER QUALITY HISTORY:

Strother Creek is listed as impaired in Missouri's U.S. Environmental Protection Agency, or EPA, approved 2012 303(d) list of impaired waters for arsenic, lead, nickel, and zinc in water and/or sediment.

Crooked Creek is on the 2012 303(d) list for cadmium in sediment and water column, lead in sediment, and copper in the water. With the proposed consolidation of flows to Viburnum Operations and Buick Mine/Mill, loading and discharges to Crooked Creek by Casteel and Buick Recycling will be eliminated.

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	RECEIVING WATERBODY	DISTANCE TO CLASSIFIED SEGMENT (MI)
002	21.39	Chemical/physical	Tributary to Strother Creek	~0.6

3. RECEIVING WATERBODY INFORMATION

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*
Tributary to Strother Creek	U	--	General Criteria
Strother Creek	P	2751	AQL, CLF, LLW, WBC(B)

* Protection of Warm Water Aquatic Life and Human Health-Fish Consumption (AQL), Cold Water Fishery (CDF), Cool Water Fishery (CLF), Drinking Water Supply (DWS), Industrial (IND), Irrigation (IRR), Livestock & Wildlife Watering (LWW), Secondary Contact Recreation (SCR), Whole Body Contact Recreation (WBC).

4. EPA REGION 7 CONSENT JUDGMENT

Doe Run Resources Corp. has agreed to correct violations of several environmental laws at ten of its lead mining, milling and smelting facilities in southeast Missouri. The settlement requires Doe Run to establish financial assurance trust funds, for the cleanup of Herculaneum and the following active or former mining and milling facilities: Brushy Creek, Buick, Fletcher, Sweetwater, Viburnum and West Fork. This commitment ensures that financing will be available to fund the cleanup of the smelter property and the six mining and milling sites whenever they are eventually closed. Doe Run will also take steps to finalize and come into compliance with more protective Clean Water Act permits at ten of its facilities, including Herculaneum, Glover, Buick Mill, Brushy Creek, Fletcher, Sweetwater, Viburnum, West Fork, Viburnum Mine #35 (Casteel), and Buick Resource Recycling.

5. ANTIDEGRADATION REVIEW INFORMATION

The following is a review of the *Antidegradation Report* dated July 22, 2013.

5.1. TIER DETERMINATION

Below is a list of pollutants of concern reasonably expected to be in the discharge, based on the existing discharge permits. Pollutants of concern are defined as those pollutants "proposed for discharge that affects beneficial use(s) in waters of the state. POCs include pollutants that create conditions unfavorable to beneficial uses in the water body receiving the discharge or proposed to receive the discharge." (AIP, Page 7). Loading is being reduced for the pollutants; however a discussion of alternatives is included in section 5.3 to discuss how Doe Run approached the upgrades and changes at the facilities.

Table 2. Pollutants of Concern and Tier Determination

POLLUTANTS OF CONCERN	TIER*	DEGRADATION	COMMENT
Total Suspended Solids (TSS)	**	Minimal	
pH	***	Minimal	Permit limits applied
Oil and Grease	2	Minimal	Permit limits applied
Arsenic, Total Recoverable	2	Minimal	Permit limits applied
Cadmium, Total Recoverable	1	Minimal	Permit limits applied
Copper, Total Recoverable	2	Minimal	Permit limits applied
Lead, Total Recoverable	1	Minimal	Permit limits applied
Mercury, Total Recoverable	2	Minimal	Permit limits applied
Zinc, Total Recoverable	1	Minimal	Permit limits applied

* Tier assumed. Tier determination not possible: ** No in-stream standards for these parameters. *** Standards for these parameters are ranges

5.2. Existing Water Quality

Strother Creek is on the 2012 303(d) list for Nickel, Lead, Zinc, and Arsenic. The unclassified portions of Strother Creek below the mine and seven miles of the classified portion of the stream are impaired. The sole source of this pollution is the Buick Mine. A TMDL has not been prepared for this receiving stream; therefore water quality based effluent limits have been imposed.

Under the NPDES renewals and the EPA Consent Judgment, Doe Run is being required to meet final limits that will allow receiving streams to meet the water quality standards. Doe Run is installing treatment facilities to remove metals out of the process wastewater, along with implementing best management practices to reduce stormwater flows through Stormwater Pollution Prevention Plans.

5.3. Demonstration of Necessity and Social and Economic Importance

Doe Run approached the antidegradation requirements on a watershed/regionalization holistic basis. The seven facilities affected are in different sub-watersheds; however the impact of the Doe Run's operations affects a regional area of Iron, Reynolds, and Washington Counties.

To meet final water quality based effluent limits, Doe Run has chosen to upgrade treatment at the existing mines and mills. The current technology used in tailings ponds and settling basins removes a percentage of the metals, but not to the level required under the renewed state operating permit. Doe Run has performed a wastewater treatability study and preliminary feasibility and cost analyses addressing all seven facilities. There is not an off-the shelf technology available to meet the effluent limits required for cadmium, lead, and zinc. Doe Run completed pilot projects using chemical addition for precipitation, flocculation, and clarification, as well as biotreatment. Doe Run also evaluated the cost associated with building seven treatment plants at their mines and mills, and examined whether operations could be combined. Doe Run determined building five treatment facilities, and rerouting and pumping of existing flows to different locations was the best alternative from a cost standpoint and from an environmental impact point of view.

Along with the rerouting of flows from Buick Resource Recycling to Buick Mine/Mill, Doe Run decided to reroute flows from the Casteel mine over to the Viburnum Mine #28/29. By transferring the Casteel water to the Viburnum Operations, there will no longer be a discharge into Crooked Creek.

Buick Mine/Mill (MO0002003) has two existing outfalls. Currently Outfall 002 is a discharge from the settling/clarifying basin with an average flow of 13.4 MGD. The discharge is to Strother Creek. Strother Creek is on the 2012 303(d) list for water and/or sediment impairments for lead, zinc, nickel, and arsenic.

Buick Resource Recycling Facility (MO0000337) has four existing outfalls. Currently Outfall 001 is a discharge from pretreatment facility, with an actual flow of 0.396 MGD. The pretreatment facility includes the following unit processes:

1. Physical settling in the six million gallon above-ground concrete collection tank. The wastewater is then pumped into the wastewater treatment plant.
2. Chemical addition for coagulation and sedimentation of insoluble heavy metals.
3. pH adjustment
4. Mixing and clarification
5. Polishing Filter(s) before routing for final treatment

Prior to rerouting flows from Buick Resource Recycling Facility to the Buick Mine/Mill, the flows at the Recycling Facility will meet the categorical effluent limits of Nonferrous Metal Manufacturing Point Source Category, Secondary Lead Subcategory, 40 CFR 421.134 and Primary Lead Subcategory, 40 CFR 421.73(D) (Appendix B: Categorical Effluent Limits Determination). The existing discharge is to Crooked Creek, which is on the 303(d) list for cadmium, lead, and copper.

Doe Run is proposing to combine flows from Buick Resource Recycling Facility and Buick Mine/Mill and to construct a treatment facility to process and treat wastewater and stormwater flows from the two facilities. To accomplish this, Doe Run would pump water from Buick Recycling Pretreatment Facility (BRRF-001) to Buick Mine or Mill and drain into

Buick Mine/Mill Pond / tailings impoundment. The treated water would discharge through Outfall 002 into Strother Creek. With the installation of treatment facilities to meet final effluent limits in the Buick Mine/Mill permit, the flows will increase but the metal loadings will decrease. The new design flow at Outfall 002 is conservatively estimated to be 13.8 mgd.

The community affected by the new treatment plant and the combination of flows is the residents of Iron and Reynolds counties. Doe Run is a large employer to the communities, providing a direct and indirect impact to the economy and the tax base. Doe Run is removing environmental health hazards to the community by decreasing loading into the streams from the facilities, combining flows from the plants and removing risks on Crooked Creek and decreasing loading to Strother Creek.

Tables 3: Change in Loading for Buick Mine/Mill

Parameters	Interim limit	Final limit	Change in load
	mg/L	mg/L	%
Cadmium	0.1	0.0012	-98.8%
Copper	0.3	0.0858	-70.6%
Lead	0.526	0.0566	-88.9%
Zinc	0.826	0.4345	-47.9%

6. General Assumptions of the Water Quality and Antidegradation Review

1. A Water Quality and Antidegradation Review (WQAR) assumes that [10 CSR 20-6.010(3) Continuing Authorities and 10 CSR 20-6.010(4) (D), consideration for no discharge] has been or will be addressed in a Missouri State Operating Permit or Construction Permit Application.
2. A WQAR does not indicate approval or disapproval of alternative analysis as per [10 CSR 20-7.015(4) Losing Streams], and/or any section of the effluent regulations.
3. Changes to Federal and State Regulations made after the drafting of this WQAR may alter Water Quality Based Effluent Limits (WQBEL).
4. Effluent limitations derived from Federal or Missouri State Regulations (FSR) may be WQBEL or Effluent Limit Guidelines (ELG).
5. WQBEL supersede ELG only when they are more stringent. Mass limits derived from technology based limits are still appropriate.
6. A WQAR does not allow discharges to waters of the state, and shall not be construed as a National Pollution Discharge Elimination System or Missouri State Operating Permit to discharge or a permit to construct, modify, or upgrade.
7. Limitations and other requirements in a WQAR may change as Water Quality Standards, Methodology, and Implementation procedures change.
8. Nothing in this WQAR removes any obligations to comply with county or other local ordinances or restrictions.
9. If the proposed treatment technology is not covered in 10 CSR 20-8 Design Guides, the treatment process may be considered a new technology. As a new technology, the permittee will need to work with the review engineer to ensure equipment is sized properly. The operating permit may contain additional requirements to evaluate the effectiveness of the technology once the facility is in operation. This Antidegradation Review is based on the information provided by the facility and is not a comprehensive review of the proposed treatment technology. If the review engineer determines the proposed technology will not consistently meet proposed effluent limits, the permittee will be required to revise their Antidegradation Report.

7. Mixing Considerations

Mixing Zone (MZ): Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(a)].
Zone of Initial Dilution (ZID): Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(b)]

8. PERMIT LIMITS AND MONITORING INFORMATION

WASTELOAD ALLOCATION STUDY CONDUCTED (Y OR N):	No	USE ATTAINABILITY ANALYSIS CONDUCTED (Y OR N):	No	WHOLE BODY CONTACT USE RETAINED (Y OR N):	No

WET TEST (Y OR N):	YES	FREQUENCY:	ONCE/QUARTER	AEC:	100%	METHOD:	MULTIPLE

TABLE 4: OUTFALL 002 EFFLUENT LIMITS

PARAMETER	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	BASIS FOR LIMIT (NOTE 1)	MONITORING FREQUENCY
FLOW	MGD	*		*	FSR	ONCE/MONTH
PH - UNITS	SU	6.5– 9.0		6.5 – 9.0	FSR	ONCE/MONTH
TOTAL SUSPENDED SOLIDS	mg/L	30		20	FSR	ONCE/MONTH
OIL & GREASE	mg/L	15		10	FSR	ONCE/MONTH
CHLORIDES	mg/L	*		*	WQBEL	ONCE/MONTH
SULFATE	mg/L	*		*	WQBEL	ONCE/MONTH
ANTIMONY, TOTAL RECOVERABLE	µg/L	*		*	WQBEL	ONCE/QUARTER
ARSENIC, TOTAL RECOVERABLE	µg/L	32.7		16.3	WQBEL	ONCE/MONTH
CADMIUM, TOTAL RECOVERABLE	µg/L	1.2		0.6	WQBEL	ONCE/MONTH
COPPER, TOTAL RECOVERABLE	µg/L	85.8		42.8	WQBEL	ONCE/MONTH
LEAD, TOTAL RECOVERABLE	µg/L	56.6		28.2	WQBEL	ONCE/MONTH
MERCURY, TOTAL RECOVERABLE	µg/L	2.0		1.0	TBEL	ONCE/YEAR
NICKEL, TOTAL RECOVERABLE	µg/L	292		145.5	WQBEL	ONCE/MONTH
ZINC, TOTAL RECOVERABLE	µg/L	434.5		216.5	WQBEL	ONCE/MONTH
WHOLE EFFLUENT TOXICITY (WET) TEST	TUc	1.6			WQBEL	ONCE/QUARTER

* - Monitoring requirements only.

NOTE 1 –WATER QUALITY-BASED EFFLUENT LIMITATION --WQBEL; OR MINIMALLY DEGRADING EFFLUENT LIMIT--MDEL; OR PREFERRED ALTERNATIVE EFFLUENT LIMIT-PEL; TECHNOLOGY-BASED EFFLUENT LIMIT-TBEL; OR NO DEGRADATION EFFLUENT LIMIT--NDEL; OR FSR --FEDERAL/STATE REGULATION; OR N/A--NOT APPLICABLE. ALSO, PLEASE SEE THE **GENERAL ASSUMPTIONS OF THE WQAR #4 & #5.**

9. RECEIVING WATER MONITORING REQUIREMENTS

At Buick Mine/Mill, receiving stream monitoring is required in the existing permit, approximately 10 yards below the confluence of Strother Creek and Little Creek at SM1. At Buick Resource Recycling Facility, instream monitoring is currently required. With the permit modification of Buick Resource, the requirement for instream monitoring should be evaluated for Crooked Creek, as the proposed transfer of water to Buick Mine will remove discharge from Crooked Creek.

10. DERIVATION AND DISCUSSION OF LIMITS

1) Wasteload allocations and limits were calculated using water quality-based – Using water quality criteria or water quality model results and the dilution equation below:

$$C = \frac{(C_s \times Q_s) + (C_e \times Q_e)}{(Q_e + Q_s)}$$ (EPA/505/2-90-001, Section 4.5.5)

Where C = downstream concentration
C_s = upstream concentration
Q_s = upstream flow
C_e = effluent concentration
Q_e = effluent flow

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration).Water quality-based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

10.1. *OUTFALL #002* – BUICK MINE/MILL MAIN OUTFALL LIMIT DERIVATION

- **Flow**. In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the department, which may require the submittal of an operating permit modification.

- **pH.** The categorical effluent limit in 40 CFR 440.102(b) requires a pH to be maintained in the range of six to nine (6.0-9.0) standard units. The water quality standard in 10 CSR 20-7.015(9)(G)1 and 10 CSR 20-7.031(4)(E) requires the pH be maintained in the range of six and half to nine (6.5– 9.0) standard units. The Missouri Water Quality Standards are more protective and are in effect.

- **Total Suspended Solids (TSS).** The categorical effluent limit in 40 CFR 440.102(b) requires a TSS maximum daily concentration of 30 mg/L and a monthly average of 20 mg/L.

- **Oil & Grease**. Conventional pollutant, [10 CSR 20-7.031, Table A]. Effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.

- **Sulfates as SO_4**. Monitoring to determine if this facility poses a reasonable potential to violate water quality standards.

- **Chlorides.** Monitoring to determine if this facility poses a reasonable potential to violate water quality standards.

- **Metals**

  Hardness Dependent Metals:

  Effluent limitations for total recoverable metals were developed using methods and procedures outlined in EPA/505/2-90-001 and "The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion" (EPA 823-B-96-007). General warm-water fishery criteria apply and a water hardness of 393 mg/L is used in the calculation of water quality criteria. Hardness was determined from data submitted with the Metals Translator Study completed by Doe Run. This hardness is based on the effluent flow from outfall 002, as this discharge is to an unclassified stream which flows more than a mile before reaching a classified stream. Conversion factor values supplied by the permittee via a dissolved metals translator study, which provides the site specific conditions for determining partitioning between dissolved and total recoverable metals. The plan for this study was approved by the Department. Therefore the hardness of the unclassified stream is expected to closely resemble the effluent hardness from this facility.

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Copper	0.550	0.550
Lead	0.310	0.310
Nickel	0.930	0.930
Zinc	0.860	0.860

Conversion factor values supplied by the permittee via a dissolved metals translator study. This study provides the site specific conditions for determining partitioning between dissolved and total recoverable metals. The plan for this study was approved by the Department.

- **Antimony, Total Recoverable.** Quarterly Monitoring only. Antimony is categorical effluent parameters at Buick Resource Recycling Facility and the final concentrations before discharge should be monitored.

- **Arsenic, Total Recoverable.** Protection of Aquatic Life Chronic Criteria= 20.0 µg/L, (Table A of 10 CSR 20-7, pgs.20-21)

  Chronic= 20.0 µg/L
  LTA_c= 20.0(0.527)= **10.5** µg/L [CV= 0.6, 99th Percentile]
  MDL= 10.5(3.11) = 32.7 µg/L [CV= 0.6, 99th Percentile]
  AML= 10.5 (1.55) = 16.3 µg/L [CV= 0.6, 95th Percentile, n= 4]

- **Cadmium, Total Recoverable.** The categorical effluent limit in 40 CFR 440.102(b) requires a cadmium maximum daily concentration of 0.10 mg/L (100 µg/L) and a monthly average of 0.05 mg/L (50 µg/L). The water quality based effluents are calculated below, and are more protective than the categorical effluent limits. Protection of Aquatic Life Chronic Criteria= 0.6µg/L, Acute Criteria = 16.5 µg/L. (Table A of 10 CSR 20-7, pgs.20-21)

  Chronic = 0.6/0.855 = 0.7 µg/L WLA_c= 0.7 µg/L
  Acute= 16.5/0.890 = 18.5 µg/L WLA_a=18.5 µg/L

  LTA_c= 0.7(0.527)= **0.4** µg/L [CV= 0.6, 99th Percentile]
  LTA_a= 18.5(0.321) = 5.9 µg/L [CV= 0.6, 99th Percentile]
  MDL=0.4(3.11) = 1.2 µg/L [CV= 0.6, 99th Percentile]
  AML= 0.4(1.55) = 0.6 µg/L [CV= 0.6, 95th Percentile, n= 4]

- **Copper, Total Recoverable.** The categorical effluent limit in 40 CFR 440.102(b) requires a copper maximum daily concentration of 0.30 mg/L (300 µg/L) and a monthly average of 0.15 mg/L (150 µg/L). The water quality based effluents are calculated below, and are more protective than the categorical effluent limits. Protection of Aquatic Life Chronic Criteria= 28.8 µg/L, Acute Criteria = 48.8 µg/L. (Table A of 10 CSR 20-7, pgs.20-21)

  Chronic = 28.8/0.550 = 52.7 µg/L — WLA_c= 52.4 µg/L
  Acute= 48.8/0.550 = 88.7 µg/L — WLA_a= 88.7 µg/L

  LTA_c= 52.4(0.527)= **27.63 µg/L** — [CV= 0.6, 99th Percentile]
  LTA_a= 88.7(0.321) = 28.5 µg/L — [CV= 0.6, 99th Percentile]
  MDL=27.6 (3.11) = 85.8 µg/L — [CV= 0.6, 99th Percentile]
  AML= 27.6 (1.55) = 42.8 µg/L — [CV= 0.6, 95th Percentile, n= 4]

- **Lead, Total Recoverable** The categorical effluent limit in 40 CFR 440.102(b) requires a lead maximum daily concentration of 0.6 mg/L (600 µg/L) and a monthly average of 0.3 mg/L (300 µg/L). The water quality based effluents are calculated below, and are more protective than the categorical effluent limits. Protection of Aquatic Life Chronic Criteria= 10.7µg/L, Acute Criteria = 276 µg/L. (Table A of 10 CSR 20-7, pgs.20-21)

  Chronic = 10.7/0.310 = 34.5 µg/L — WLA_c= 34.5 µg/L
  Acute=276/0.310 = 890µg/L — WLA_a=890 µg/L

  LTA_c= 34.5(0.527)= **18.2** µg/L — [CV= 0.6, 99th Percentile]
  LTA_a= 890(0.321) = 285.7 µg/L — [CV= 0.6, 99th Percentile]
  MDL=18.2 (3.11) = 56.6 µg/L — [CV= 0.6, 99th Percentile]
  AML= 18.2 (1.55) = 28.2 µg/L — [CV= 0.6, 95th Percentile, n= 4]

- **Mercury, Total Recoverable.** The categorical effluent limit in 40 CFR 440.102(b) requires a mercury maximum daily concentration of 0.002 mg/L (2.0 µg/L) and a monthly average of 0.001 mg/L (1.0 µg/L). Facility demonstrated during permit renewal that reasonable potential does not exist for exceedance of Water Quality Standards. This facility is subject to an Effluent Limit Guideline (ELG) for Mercury, and cannot certify that no Mercury exists in the wastewater; the categorical effluent limit must be applied.

- **Nickel, Total Recoverable.** Protection of Aquatic Life Chronic Criteria= 166 µg/L, Acute Criteria = 1491 µg/L. (Table A of 10 CSR 20-7, pgs.20-21)

  Chronic = 166/0.930 = 178 µg/L — WLA_c= 178 µg/L
  Acute=1491/0.930 = 1603µg/L — WLA_a=1603 µg/L

  LTA_c= 178(0.527)= **93.8** µg/L — [CV= 0.6, 99th Percentile]
  LTA_a= 1603 (0.321) = 515 µg/L — [CV= 0.6, 99th Percentile]
  MDL=93.8 (3.11) = 292 µg/L — [CV= 0.6, 99th Percentile]
  AML= 93.8 (1.55) = 145 µg/L — [CV= 0.6, 95th Percentile, n= 4]

- **Zinc, Total Recoverable.** The categorical effluent limit in 40 CFR 440.102(b) requires a zinc maximum daily concentration of 1.0 mg/L (1000 µg/L) and a monthly average of 0.5 mg/L (500 µg/L). The water quality based effluents are calculated below, and are more protective than the categorical effluent limits. Protection of Aquatic Life Chronic Criteria= 374µg/L, Acute Criteria = 374 µg/L. (Table A of 10 CSR 20-7, pgs.20-21)

  Chronic = 374/0.860 = 435 µg/L — WLA_c= 435 µg/L
  Acute= 3747/0.860 = 435 µg/L — WLA_a=435 µg/L

  LTA_c= 435 (0.527)= 229.2 µg/L — [CV= 0.6, 99th Percentile]
  LTA_a= 435 (0.321) = **139.6** µg/L — [CV= 0.6, 99th Percentile]
  MDL=139.6 (3.11) = 434.5 µg/L — [CV= 0.6, 99th Percentile]
  AML= 139.6 (1.55) = 216.4 µg/L — [CV= 0.6, 95th Percentile, n= 4]

- **WET Test.** WET Testing schedules and intervals are established in accordance with the department's Permit Manual; Section 5.2 *Effluent Limits / WET Testing for Compliance Bio-monitoring.* It is recommended that WET testing be conducted during the period of lowest stream flow.
  ☒ Chronic
  ☒ No less than **TWICE/YEAR:**
  ☒ Facility handles large quantities of toxic substances, or substances that are toxic in large amounts. Quarterly testing from the existing permit is retained.

Acute and/or Chronic Allowable Effluent Concentrations (AECs) for facilities that discharge to unclassified, streams are 100%, 50%, 25%, 12.5%, & 6.25%.

Acute WET $WLA_a = 0.3$

A default acute to chronic ratio value of 10 is used based on the information presented in Chapter 1 and Appendix A of the TSD.

$WLA_{a,c} = WLA_a \times ACR$, where ACR = acute-to-chronic ratio
WET $WLA_{a,c} = 10\ (0.3TU_a) = 3.0TU_{a,c}$

Chronic WET $WLA_c = 1.0$

From this point forward, the effluent limit calculation is the same as for other parameters, such as metals. This example is for Chronic WET.

The acute WLA is converted to a long-term average concentration ($LTA_{a,c}$) using the following equation:
$LTA_{a,c} = 3.0\ TU_{a,c}(0.321) = 0.963$ [CV = 0.6, 99th Percentile]
$LTA_c = 1.0\ TU_c\ (0.527) = 0.527$ [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a. To protect a waterbody from both acute and chronic effects, the more limiting of the calculated LTAa and LTA_c is used to derive the effluent limits. As shown above, the LTAc value was less than the $LTA_{a,c}$ value.

WET Limit 0.527 TU (3.11) = 1.6 TU [CV = 0.6, 99th Percentile]

TABLE 5: COMPARISON OF WATER QUALITY BASED EFFLUENT LIMITS VS. CATEGORICAL LIMITS
A comparison must be made of all calculated water quality based effluent limits and categorical limits. The most protective limit appears in the permit.

Effluent Parameter	Units	WQBEL	Categorical Limit
pH	SU	**6.5 - 9.0**	6.0 - 9.0
Total Suspended Solids	mg/L	N/A	**30 / 20**
Arsenic, Total Recoverable	µg/L	**32.7/16.3**	N/A
Cadmium, Total Recoverable	µg/L	**1.2/0.6**	100 / 50
Copper, Total Recoverable	µg/L	**85.8/42.8**	300 / 150
Lead, Total Recoverable	µg/L	**56.6/28.2**	600 / 300
Mercury, Total Recoverable	µg/L	N/A	**2 / 1**
Nickel, Total Recoverable	µg/L	**292/145.5**	N/A
Zinc, Total Recoverable	µg/L	**434.5/216.5**	1,000 / 500

TABLE 6: INTERNAL MONITORING AT BRRF PRETREATMENT PLANT
As separate Effluent Limit Categories apply to the Buick Recycling Facility, an internal compliance point will be established at Buick Recycling to ensure the categorical effluent limits are met during the pretreatment phase before combining with the additional flows at Buick Mine for final treatment.

PARAMETER	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	BASIS FOR LIMIT (NOTE 1)	MONITORING FREQUENCY
FLOW	MGD	*		*	N/A	ONCE/MONTH
PH - UNITS	SU	7.5-10.0		7.5-10.0	FSR	ONCE/MONTH
TOTAL SUSPENDED SOLIDS	mg/L	30		20	FSR	ONCE/MONTH
CHLORIDE	mg/L	*		*	WQBEL	ONCE/MONTH
SULFATE	mg/L	*		*	WQBEL	ONCE/MONTH
ANTIMONY	lbs/day	5.59		2.28	WQBEL	ONCE/MONTH
ARSENIC, TOTAL RECOVERABLE	lbs/day	4.03		1.61	TBEL	ONCE/MONTH
LEAD, TOTAL RECOVERABLE	lbs/day	2.44		1.09	TBEL	ONCE/MONTH
ZINC, TOTAL RECOVERABLE	lbs/day	8.89		3.43	TBEL	ONCE/MONTH

* - Monitoring requirements only.
NOTE 1 –WATER QUALITY-BASED EFFLUENT LIMITATION --WQBEL; OR MINIMALLY DEGRADING EFFLUENT LIMIT--MDEL; OR PREFERRED ALTERNATIVE EFFLUENT LIMIT-PEL; TECHNOLOGY-BASED EFFLUENT LIMIT-TBEL; OR NO DEGRADATION EFFLUENT LIMIT--NDEL; OR FSR --FEDERAL/STATE REGULATION; OR N/A--NOT APPLICABLE. ALSO, PLEASE SEE THE **GENERAL ASSUMPTIONS OF THE WQAR #4 & #5.**

10.2. *OUTFALL #001* – BRRF PRETREATMENT FACILITY OUTFALL LIMIT DERIVATION

- **Flow**. In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the department, which may require the submittal of an operating permit modification.

- **pH.** The categorical effluent limit requires a pH to be maintained in the range of seven and a half to ten (7.5-10.0) standard units.

- **Total Suspended Solids (TSS).** The categorical effluent limit in 40 CFR 440.102(b) requires a TSS maximum daily concentration of 127 lbs/day and a monthly average of 85 lbs/day.

- **Antimony, Total Recoverable.** The categorical effluent limit calculated in Appendix B is applicable. The antimony maximum daily concentration is 5.59 lbs/day and the monthly average is 2.28 lbs/day.

- **Arsenic, Total Recoverable.** The categorical effluent limit calculated in Appendix B is applicable. The antimony maximum daily concentration is 4.03 lbs/day and the monthly average is 1.61 lbs/day.

- **Lead, Total Recoverable** The categorical effluent limit calculated in Appendix B is applicable. The antimony maximum daily concentration is 2.44 lbs/day and the monthly average is 1.09 lbs/day.

- **Zinc, Total Recoverable.** The categorical effluent limit calculated in Appendix B is applicable. The zinc maximum daily concentration is 8.89 lbs/day and the monthly average is 3.43 lbs/day.

- **Sulfates as SO_4.** Monitoring only to determine contribution from Buick Resource Recycling. Parameter identified at both Buick Resource and Buick Mine/Mill.

- **Chlorides.** Monitoring only to determine contribution from Buick Resource Recycling. Parameter identified at both Buick Resource and Buick Mine/Mill.

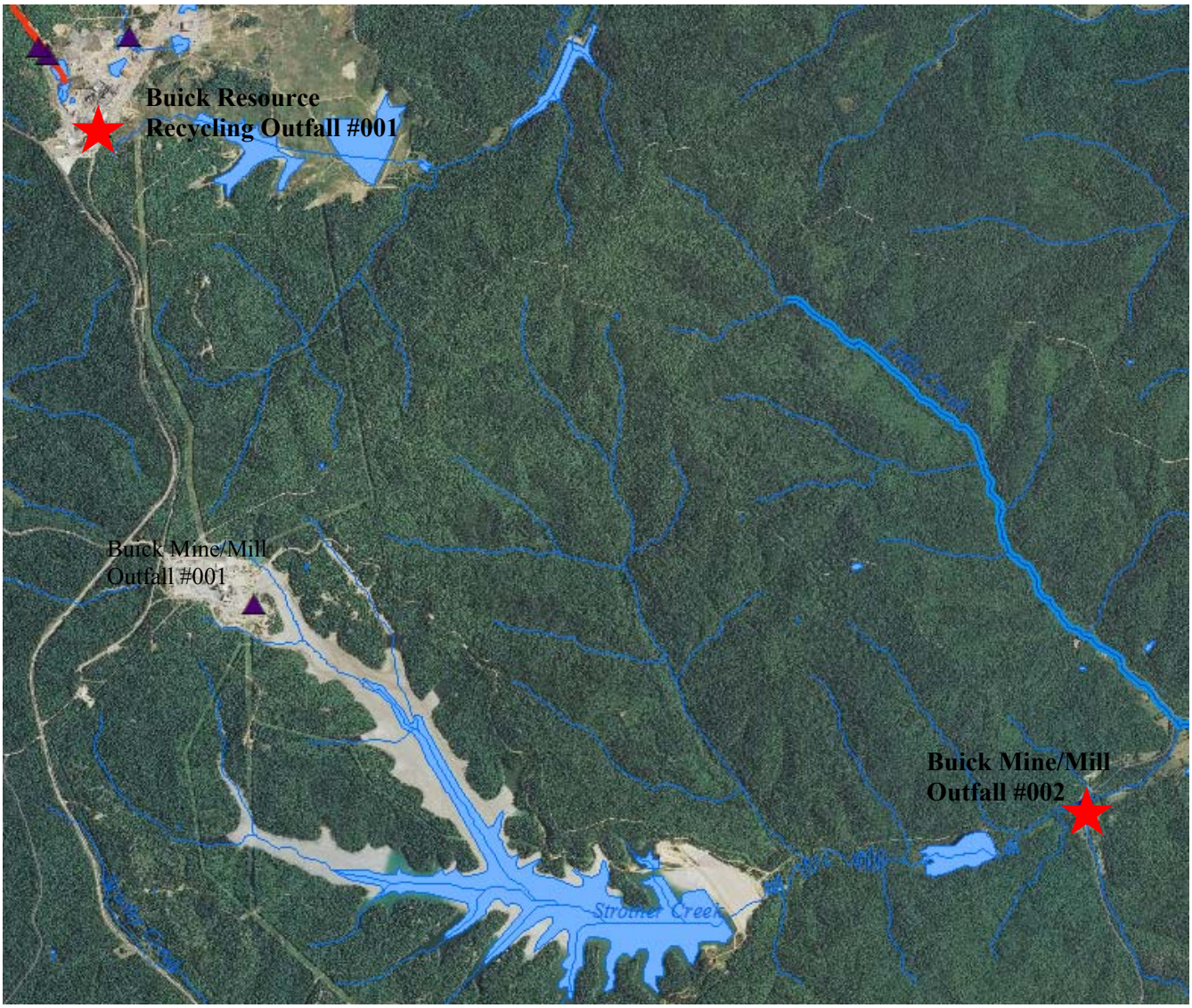
11. ANTIDEGRADATION REVIEW PRELIMINARY DETERMINATION

By pumping Buick Resource Recycling Facility water to the Buick Mine/Mill, there will no longer be a discharge to Crook Creek. Also, by constructing a new wastewater treatment plant at the Buick Mine/Mill Operations, Strother Creek will experience lower pollutant loadings and water quality should improve. Therefore, the Buick Mine/Mill's new wastewater treatment process that will likely utilize chemical addition for precipitation, flocculation, and clarification and elimination of existing outfalls was determined to be the base case technology (lowest cost alternative that meets technology and water quality based effluent limitations).

Per the requirements of the AIP, the effluent limits in this review were developed to be protective of beneficial uses and to attain the highest statutory and regulatory requirements. MDNR has determined that the submitted review is sufficient and meets the requirements of the AIP. No further analysis is needed for this discharge.

Reviewer: Lease Meyers, EIT
Date: 08 /23/2013
Unit Chief: John Rustige, P.E.

Appendix A: Map of Buick Resource Recycling Pretreatment Facility and Buick Mine/Mill Discharge Location



Appendix B: Calculation of Categorical Effluent Limits at Buick Resource Recycling Facility

Metals – Categorical limits

Categorical limits are limits on pollutants from certain industries under authorities listed in 40 CFR § 401.12. For the Secondary Lead industry, the Standards of Performance for New Sources limits are in 40 CFR §421.134. The permit limit is calculated by multiplying the regulation limit (the mass of pollutant per mass of product) by the quantity produced per day. Each process is given a limit, and the masses are added to establish the permit limit. This facility retains one process from when it was a Primary Lead Smelter, Dross Plant and Refinery Dross Wet Granulation, for which an allocation is allowed from 421.73(d).

For example:

The maximum amount of antimony that can be released in one day is 1.299 pounds of antimony per million pounds of lead produced by battery cracking. If 0.92 millions pounds of lead are produced,

$$1.299 \times 0.92 = 1.195 \text{ lb}$$

Therefore, 1.195 lbs/day maximum of antimony can be released for this individual process.

In addition, non-scope flows are allotted for stormwater and miscellaneous flows. The actual average flow at Outfall #001 is 0.396 MGD, or 275 gpm. Stormwater flows at the facility may account for 150 gpm or more on an annual average basis (approximately 100 acres contributing runoff, average annual precipitation of approximately 40 inches, and an average runoff coefficient of approximately 75). Other non-scope flows at the facility receiving treatment and being discharged through Outfall #001 include landfill leachate (approximately 20 gpm) and laboratory water (approximately 1 gpm). Total non-scope flows are approximately 171 gpm. Converting the flow units for Stormwater and miscellaneous flows:

Flow rate = 171 gallons per minute x 60 minutes/hour x 24 hour/day x 8.34 lb/gallon = 2,053,642 lb/day ≈ **2.054 million lb/day.**

This value for flow rate is used as a multiplier in the table, Calculation of Categorical Limits. Non-scope flow concentrations are taken from Table VII-21, page 248, "Development Document for Effluent Limitations Guidelines and Standards for the Nonferrous Metals Manufacturing Point Source Category", Final Vol. 1, EPA 1989.

The categorical limits are mass-based, and are listed in the effluent limitation table as a mass limit in pounds per day (lb/day). The following tables summarize the calculations:

Calculation of Categorical Limits

NSPS limits[1] based on Nonferrous Metals Manufacturing Point Source Category, Secondary Lead Subcategory, 40 CFR 421.134, and Primary Lead Subcategory, 40 CFR 421.73(d)

(Paragraph)		Sb day	Sb mo	As day	As mo	Pb day	Pb mo	Zn day	Zn mo
(a)	Battery Cracking	1.299	0.579	0.936	0.384	0.189	0.087	0.687	0.283
(d)	Lead Paste Desulfurization	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(f)	Truck Wash	0.041	0.018	0.029	0.012	0.006	0.003	0.021	0.009
(g)	Facility Washdown	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(h)	Battery Case Classification	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(i)	Employee Handwash	0.052	0.023	0.038	0.015	0.008	0.004	0.028	0.011
(j)	Employee Respirator Wash	0.085	0.038	0.061	0.025	0.012	0.006	0.045	0.018
(k)	Laundering of Uniforms	0.247	0.110	0.178	0.073	0.036	0.017	0.131	0.054
	Dross Reverb Slag Granulation	0.000	0.000	0.000	0.000	219	102	797	328
non-scope	Stormwater and Miscellaneous[2]	1.93	0.76	1.39	0.55	0.28	0.11	1.02	0.31

Production-based mass allowances for each operation, pounds

Production[3]		Sb day	Sb mo	As day	As mo	Pb day	Pb mo	Zn day	Zn mo
0.92	Battery Cracking	1.195	0.533	0.861	0.353	0.174	0.080	0.632	0.260
0.92	Lead Paste Desulfurization	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.01	Truck Wash	0.041	0.018	0.029	0.012	0.006	0.003	0.021	0.009
1.01	Facility Washdown	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.92	Battery Case Classification	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.01	Employee Handwash	0.053	0.023	0.038	0.015	0.008	0.004	0.028	0.011
1.01	Employee Respirator Wash	0.086	0.038	0.062	0.025	0.012	0.006	0.045	0.018
1.01	Laundering of Uniforms	0.249	0.111	0.180	0.074	0.036	0.017	0.132	0.055
1.01	Dross Reverb Slag Granulation	0.000	0.000	0.000	0.000	1.628	0.755	5.932	2.442
2.0540	Stormwater and Miscellaneous[2]	3.964	1.561	2.855	1.130	0.575	0.226	2.095	0.637

MO0000337 limits for each pollutant:

		Sb day	Sb mo	As day	As mo	Pb day	Pb mo	Zn day	Zn mo
Total, lb		5.59	2.28	4.03	1.61	2.44	1.09	8.89	3.43

pH within the range of 7.5 to 10.0 at all times

1) Limits in mg/kg (pounds per million pounds) of lead produced, for any one day (day), or for monthly average (mo)

2) Laboratory, roadway washing, tire wash

3) Production, in million pounds per day, from application or supplemental information provided by permittee. For Stormwater, flow from supplemental information converted to million pounds per day.

Note: Non-scope flow concentrations from Table VII-21, page 248, "Development Document for Effluent Limitations Guidelines and Standards for the Nonferrous Metals Manufacturing Point Source Category," Final, Vol. 1, EPA 1989

Limits for Ammonia and TSS are developed elsewhere in the Fact Sheet.

Appendix B: Response to Pre-public notice Comments

COMMENT NO. 1: At the bottom of the cover page, it says that the permit "authorizes only wastewater discharges . . . ." Outfall #002 is comprised of stormwater. Therefore, should the cover page be revised to say that "This permit authorizes ~~only~~ wastewater and stormwater discharges . . . ."?

Response: This is standard language on all operating permits issued by the Department. The Department understands this statement to include stormwater discharges as identified in the facility description

COMMENT NO. 2: On page 2, the Facility Description for Outfall #001 refers to an "Internal pretreatment facility before final discharge at Buick Mine/Mill (MO-0002003)." There is no "discharge" to Buick Mine, only a transfer. The word "discharge" implies a direct release of treated wastewater to "waters of the state." Consider revising the narrative description for Outfall #001 as follows: Internal pretreatment facility that transfers partially treated stormwater and process wastewater to the ~~before final discharge at~~ Buick Mine/Mill (MO-0002003) for further treatment and eventual discharge to Strother Creek.

Response: The change was made as requested.

COMMENT NO. 3: On page 2, the Facility Description for Outfall #001 refers to the design flow for the wastewater treatment facility. BRRF would like to have the flexibility to operate both the old and the new wastewater treatment facilities at any time, not just during periods of high precipitation. BRRF plans to limit the transfer to Buick Mine/Mill to 500 gallons per minute based on logistical limitations. Therefore, we suggest the permit facility description be revised as follows: Design flow is ~~1.735~~ 0.720 MGD (~~maximum flow based on 500 gpm from new treatment plant and 705 gpm from old treatment plant~~ maximum flow based on 500 gpm from new treatment plant or from the old treatment plant, or a combination of both).

Response: The change was made as requested.

COMMENT NO. 4: At the bottom of page 3, BRRF suggests Note 1 be revised as follows: The facility may use the previous plant and the new wastewater treatment plant in any combination, however, the facility ~~periods of precipitation as necessary for operations. The facilities~~ shall meet the final effluent limits prior to ~~discharging~~ transferring effluent to Buick Mine/Mill (MO-0002003).

Response: The change was made as requested.

COMMENT NO. 5: As you are aware, Doe Run is currently in the process of securing approvals and purchasing materials to install the pipeline to transfer water from BRRF Outfall #001 to the Buick Mine. Although BRRF is planning to have the pipeline installation complete by the time the permit is modified to allow the transfer of water, the possibility exists that the pipeline would not be completed by the time the permit would be issued. The permit as written, however, would not allow a discharge from Outfall #001 to Crooked Creek. This would put BRRF in an untenable position of violating its permit because it had not yet completed the pipeline. Therefore, BRRF suggests that the permit allow BRRF the option to utilize the existing Outfall #001 discharge to Crooked Creek until July 1, 2014.

In addition, Doe Run has been in discussions with MDNR and EPA about extending Interim Limits in the BRRF and SEMO MSOPs. BRRF has asked the MDNR to adjust some of the Interim Limitations from their original concentrations or mass limits. BRRF requests the MDNR maintain and adjust the Interim Limitations table and extend the interim limits to July 1, 2014, that being the same date by which the pipeline transfer must be completed.

Response: As this permit is required to be public noticed for thirty days prior to issuance, the Department will proceed with the public notice; however prior to issuance of the modified permit, the Department will contact Doe Run to

verify the status of the pipeline and expected completion date. It would be cleaner and less confusing if the modification is not issued until the pipeline is nearing completion. Issuing a permit that has components that are only valid for two to three months after issuance confuses and complicates the permit .

Regarding the extension of interim effluent limits at BRRF, that conservation will continue between the Department, EPA, and Doe Run and if agreed upon, the extension will be handled in the revised Consent Judgment.

COMMENT NO. 6: On page 3, the permit imposes numeric effluent limits on Outfall #002 under all circumstances at all times. At certain Doe Run facilities, the department has imposed a "monitoring only" requirement on outfalls that are comprised entirely of stormwater after a 1-in-10 year, 24-hour rainfall event. Please consider a monitoring only requirement after a 1-in-10 year, 24-hour rainfall event.

Response: Numeric effluent limits were established at the renewal of this permit in 2011. The Department will reevaluate numeric limits upon renewal in January 2016 for both appropriateness and if should be adjusted for a 1-in-10 year, 24-hour rainfall event.

COMMENT NO. 7: The current permit provides for interim limits for Outfall #003 (page 5-16) that expired last month. Outfall #003 is an emergency overflow spillway for the six million gallon storage tank. The storage tank experiences infrequent overflows through outfall 003 during extreme stormwater events. Through the facilities Surface Water Management Plan (SWMP), BRRF continues to implement measures to reduce stormwater pollutant loadings to the stormwater tank and reduce the frequency of overflows. The facility has constructed roofed storage structures in which to store feedstocks and other industrial materials to avoid contact with stormwater. These new storage structures should result in reduced stormwater pollutant loading to the stormwater tank. In addition, the facility continues to reduce discharges of process water to the stormwater tank by recycling more process wastewater in its industrial processes. In addition, during the next two years, the facility will continue to focus on improving its management of solids build up in the stormwater tank to increase storage volume and reduce pollutant concentrations in the water that is directed to the wastewater treatment facility.

The draft permit imposes final effluent limitations on Outfall #003. BRRF suggests that it would be appropriate to impose a two year compliance schedule during which time Outfall #003would be granted monitoring only requirements. As part of the compliance schedule MDNR could require BRRF to maintain 60% availability of water storage in the stormwater tank during non-precipitation periods or process upsets; conduct an assessment for opportunities for improvement in its material storage and handling; and evaluate need for additional or separate storage. After two years, the permit would then impose the numeric effluent limitations on Outfall #003.

Response: The interim permit effluent limits associated with Outfall #003 expired in January 2014. Removal of the interim and/or final effluent limits for monitoring only triggers the federal anti-backsliding provisions. BRRF should continue their best management practices to continue reducing pollutant concentrations. As discharges from Outfall #003 are supposed to be infrequent and only during extreme weather events, the removal of effluent limits is not appropriate at this time. At renewal of the operating permit in January 2016, along with the continued improvement of best management practices, the need for effluent limits will be reevaluated at that time.

COMMENT NO. 8: The Fact Sheet's discussion of the Facility Description offers a narrative description of the Buick Resource Recycling Facility's industrial processes. The description in the Fact Sheet is out-of-date. The following is an up-to-date description of the industrial processes:

This facility is a recycler of various forms of lead-bearing materials into refined lead metal. Sulfuric acid originating from the recycling of those materials is used in the production process or neutralized. Lead-acid batteries are cracked and shredded to separate the lead metal, lead paste, plastic case and acid. The lead metal and paste is smelted to recover the lead which is cast into pigs, ingots and billets.

Response: The change was made as requested.

COMMENT NO. 9: On page 1 of the Fact Sheet, under the heading "2014 Modification," there is a discussion in part regarding the operation of both the old and new wastewater treatment plants. BRRF requests the flexibility to operate both the old and new plants, as necessary, to meet the final effluent limits for Outfall #001. The following sentence could be revised as follows:

This modification allows for both the new treatment plant and the older treatment plant to be utilized as necessary to meet the final effluent limitations on Outfall #001~~be used in times of high precipitations~~.

Response: The change was made as requested.

COMMENT NO. 10: The Fact Sheet has a section regarding the 303(d) List. This section says "This facility is considered to be the source of the above listed pollutant(s)." BRRF disputes the claim it is "the source." This sentence could be revised as follows: This facility is thought to have contributed to pollutant loadings that may have caused or contributed to the impairment for ~~considered to be the source of~~ the above listed pollutant(s).

Response: The change was made as requested; however the 303(d) list issued by the Department and approved by the Clean Water Commission and EPA states the source of the impairment is Buick Lead Smelter.

COMMENT NO. 11: The Fact Sheet discusses limits for Outfall #001. Under the Total Suspended Solids discussion, it says: "Antidegradation Review lists concentration limits for TSS which is incorrect for Buick Resource Recycling." It is not clear what is incorrect. It could be that the Antidegradation Review refers to a concentration instead of a mass loading. If so, the Buick Mine/Mill Antidegradation Review, when referring to the BRFF discharge, could be revised to say: "

Total Suspended Solids (TSS). The categorical effluent limit in 40 CFR 440.102(b) requires a TSS maximum daily ~~concentration~~ mass loading of 127 lbs/day and a monthly average of 85 lbs/day.

Response: The change was made as requested.

COMMENT NO. 12: On page 8 of the Fact Sheet, under the discussion of limits for Outfall #002 – Derivation and Discussion of Limits", it says "Therefore Interim limits have been established." Is this statement correct or a holdover from a previous Fact Sheet?

Response: The statement regarding interim limits was removed, as it was a carryover from the previous permit.

APPENDIX C: Response to the March 14-April 14 Public Notice Comments
The only comments received on the March 14-April 14 public notice were from Buick Resource Recycling Facility.

Comment #1: Note 1 at the bottom of page 3 says "the facility may use the previous wastewater plant and the new wastewater treatment plant in periods of precipitation, as necessary for operations. This seems to imply that the old wastewater treatment plant can only be used during periods of precipitation. Buick Resource Recycling Facility plans to use the old treatment facility at other times especially during periods of operations and maintenance. Consequently, Note 1 could be rewritten as follows "…. in periods of precipitation, or as necessary for operations and maintenance activities."

Response #1: The change was made as requested.

Comment #2: Special Condition (8)(b) requires twice per month site inspections and brief written reports. The current permit only requires monthly inspections. To date, the monthly inspections have been working well and we request the permit continue to only require monthly inspections.

Response #2: This was a drafting mistake and the permit condition was returned to: "…at least monthly site inspections and brief written report", as required in the effective permit.

Comment #3: Outfall #002 consists of the emergency spillway on Impoundment E. Impoundment E does not receive any process wastewater flows. Instead, Impoundment E only receives stormwater runoff. Presently, BRRF's permit imposes numeric effluent limits on Outfall #002. However there are several stormwater impoundments at other Doe Run facilities that are allowed to discharge without effluent limits (monitoring only) after experiencing a 1-in-10 year, 24 hour rainfall event.

Doe Run is in the process of eliminating all industrial materials stored in the Impoundment E watershed. Also, Doe Run is in the process of eliminating six acres from the Outfall #002 watershed. These modifications will allow BRRF to collect and store in Impoundment E stormwater flows from a 1-in-10 year, 24 hour rainfall event. Based on these modifications and MDNR's treatment of similar stormwater basins, BRRF requests MDNR amend the MSOP to allow Outfall #002 to discharge with a monitoring only requirement after a 1-in-10 year, 24 hour rainfall event.

Response #3: In review of Doe Run's other permit with stormwater emergency spillways, only Casteel and Sweetwater have effective permits allowing monitoring only for discharges after a 1-in-10 year, 24 hour rainfall event and no discharge prior to the 1-in-10 year, 24 hour rainfall event. The permit is being modified to reflect the no discharge and monitoring only for storm events greater than the 1-in-10 year, 24 hour storm event. As a result of this change, the permit must be public noticed again.

Comment #4: The current permit provides for interim limits for Outfall #003 (page 5-16) that expired on or about January 23, 2014. Outfall #003 is an emergency overflow spillway for the six million gallon storage tank. The storage tank experiences infrequent overflows through outfall 003 during extreme stormwater events. Through the facilities Surface Water Management Plan (SWMP), BRRF continues to implement measures to reduce stormwater pollutant loadings to the stormwater tank and reduce the frequency of overflows. The facility has constructed roofed storage structures in which to store feedstocks and other industrial materials to avoid contact with stormwater. These new storage structures should result in reduced stormwater pollutant loading to the stormwater tank. In addition, the facility continues to reduce discharges of process water to the stormwater tank by recycling more process wastewater in its industrial processes. In addition, during the next two years, the facility will continue to focus on improving its management of solids build up in the stormwater tank to increase storage volume and reduce pollutant concentrations in the water that is directed to the wastewater treatment facility.

BRRF suggests that it would be appropriate to impose a two year compliance schedule during which time Outfall #003would be granted monitoring only requirements. As part of the compliance schedule MDNR could require BRRF to maintain 60% availability of water storage in the stormwater tank during non-precipitation periods or process upsets; conduct an assessment for opportunities for improvement in its material storage and handling; and evaluate need for additional or separate storage. After two years, the permit would then impose the numeric effluent limitations on Outfall #003.

Response #4: Removal of the interim and/or final effluent limits for monitoring only triggers the federal anti-backsliding provisions. For backsliding to occur, the demonstration must be made that new information is available that was not available at the

time of permit issuance, technical mistakes were made, or events beyond the control of the permittee which there is no reasonably available remedy. It does not appear that this is the situation here, as BRRF continues to work to improve best management practices and change handling and uses of water. BRRF should continue their best management practices to continue reducing pollutant concentrations. At this time however, Outfall #003 is still demonstrating continued toxicity concerns, as demonstrated by its most recently failed its most recent WET test. As discharges from Outfall #003 are supposed to be infrequent and only during extreme weather events, the removal of effluent limits is not appropriate at this time. At renewal of the operating permit in January 2016, along with the continued improvement of best management practices, the need for effluent limits will be reevaluated at that time.

STANDARD CONDITIONS FOR NPDES PERMITS
ISSUED BY
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION
REVISED
NOVEMBER 1, 2013

These Standard Conditions incorporate permit conditions as required by 40 CFR 122.41 or other applicable state statutes or regulations. These minimum conditions apply unless superseded by requirements specified in the permit.

Part I – General Conditions

Section A – Sampling, Monitoring, and Recording

1. **Sampling Requirements.**
   a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
   b. All samples shall be taken at the outfall(s) or Missouri Department of Natural Resources (Department) approved sampling location(s), and unless specified, before the effluent joins or is diluted by any other body of water or substance.

2. **Monitoring Requirements**.
   a. Records of monitoring information shall include:
      i. The date, exact place, and time of sampling or measurements;
      ii. The individual(s) who performed the sampling or measurements;
      iii. The date(s) analyses were performed;
      iv. The individual(s) who performed the analyses;
      v. The analytical techniques or methods used; and
      vi. The results of such analyses.
   b. If the permittee monitors any pollutant more frequently than required by the permit at the location specified in the permit using test procedures approved under 40 CFR Part 136, or another method required for an industry-specific waste stream under 40 CFR subchapters N or O, the results of such monitoring shall be included in the calculation and reported to the Department with the discharge monitoring report data (DMR) submitted to the Department pursuant to Section B, paragraph 7.

3. **Sample and Monitoring Calculations.** Calculations for all sample and monitoring results which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in the permit.

4. **Test Procedures**. The analytical and sampling methods used shall conform to the reference methods listed in 10 CSR 20-7.015 unless alternates are approved by the Department. The facility shall use sufficiently sensitive analytical methods for detecting, identifying, and measuring the concentrations of pollutants. The facility shall ensure that the selected methods are able to quantify the presence of pollutants in a given discharge at concentrations that are low enough to determine compliance with Water Quality Standards in 10 CSR 20-7.031 or effluent limitations unless provisions in the permit allow for other alternatives. A method is "sufficiently sensitive" when; 1) the method minimum level is at or below the level of the applicable water quality criterion for the pollutant or, 2) the method minimum level is above the applicable water quality criterion, but the amount of pollutant in a facility's discharge is high enough that the method detects and quantifies the level of pollutant in the discharge, or 3) the method has the lowest minimum level of the analytical methods approved under 10 CSR 20-7.015. These methods are also required for parameters that are listed as monitoring only, as the data collected may be used to determine if limitations need to be established. A permittee is responsible for working with their contractors to ensure that the analysis performed is sufficiently sensitive.

5. **Record Retention.** Except for records of monitoring information required by the permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five (5) years (or longer as required by 40 CFR part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time.

6. **Illegal Activities.**
   a. The Federal Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under the permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than two (2) years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than four (4) years, or both.
   b. The Missouri Clean Water Law provides that any person or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than six (6) months, or by both. Second and successive convictions for violation under this paragraph by any person shall be punished by a fine of not more than $50,000 per day of violation, or by imprisonment for not more than two (2) years, or both.

Section B – Reporting Requirements

1. **Planned Changes.**
   a. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility when:
      i. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or
      ii. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42(a)(1);
      iii. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan;
      iv. Any facility expansions, production increases, or process modifications which will result in a new or substantially different discharge or sludge characteristics must be reported to the Department 60 days before the facility or process modification begins. Notification may be accomplished by application for a new permit. If the discharge does not violate effluent limitations specified in the permit, the facility is to submit a notice to the Department of the changed discharge at least 30 days before such changes. The Department may require a construction permit and/or permit modification as a result of the proposed changes at the facility.

2. **Twenty-Four Hour Reporting.**
   a. The permittee shall report any noncompliance which may endanger health or the environment. Relevant information shall be provided orally or via the current electronic method approved by the Department, within 24 hours from the time the permittee becomes aware of the circumstances, and shall be reported to the appropriate Regional Office during normal business hours or the Environmental Emergency Response hotline at 573-634-2436 outside of normal business hours. A written submission shall also be provided within five (5) business days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

b. The following shall be included as information which must be reported within 24 hours under this paragraph.
   i. Any unanticipated bypass which exceeds any effluent limitation in the permit.
   ii. Any upset which exceeds any effluent limitation in the permit.
   iii. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit required to be reported within 24 hours.

c. The Department may waive the written report on a case-by-case basis for reports under paragraph 2. b. of this section if the oral report has been received within 24 hours.

3. **Sanitary Sewer Overflow Reporting.** The following requirements solely reflect reporting obligations, and reporting does not necessarily reflect noncompliance, which may depend on the circumstances of the incident reported.
   a. Twenty-Four Hour (24-Hour) Reporting. The permittee or owner shall report any incident in which wastewater escapes the collection system such that it reaches waters of the state or it may pose an imminent or substantial endangerment to the health or welfare of persons. Relevant information shall be provided orally or via the current electronic method approved by the Department within 24 hours from the time the permittee becomes aware of the incident. A written submission shall also be provided within five (5) business days of the time the permittee or owner becomes aware of the incident. The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours. The five (5) day reports may be provided via the current electronic method approved by the Department.
   b. Incidents Reported via Discharge Monitoring Reports (DMRs). The permittee or owner shall report any event in which wastewater escapes the collection system, which does not enter waters of the state and is not expected to pose an imminent or substantial endangerment to the health or welfare of persons, which occur typically during wet weather events. Relevant information shall be provided with the permittee's or owner's DMRs.

4. **Anticipated Noncompliance**. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. The notice shall be submitted to the Department 60 days prior to such changes or activity.

5. **Compliance Schedules.** Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than 14 days following each schedule date. The report shall provide an explanation for the instance of noncompliance and a proposed schedule or anticipated date, for achieving compliance with the compliance schedule requirement.

6. **Other Noncompliance.** The permittee shall report all instances of noncompliance not reported under paragraphs 2, 3, 4, and 7 of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph 2. a. of this section.

7. **Other Information**. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.

8. **Discharge Monitoring Reports.**
   a. Monitoring results shall be reported at the intervals specified in the permit.
   b. Monitoring results must be reported to the Department via the current method approved by the Department, unless the permittee has been granted a waiver from using the method. If the permittee has been granted a waiver, the permittee must use forms provided by the Department.
   c. Monitoring results shall be reported to the Department no later than the 28th day of the month following the end of the reporting period.

Section C – Bypass/Upset Requirements

1. **Definitions.**
   a. *Bypass*: the intentional diversion of waste streams from any portion of a treatment facility.
   b. *Severe Property Damage*: substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
   c. *Upset*: an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

2. **Bypass Requirements.**
   a. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2. b. and 2. c. of this section.
   b. Notice.
      i. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.
      ii. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Section B – Reporting Requirements, paragraph 5 (24-hour notice).
   c. Prohibition of bypass.
      i. Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless:
         1. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
         2. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
         3. The permittee submitted notices as required under paragraph 2. b. of this section.
      ii. The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three (3) conditions listed above in paragraph 2. c. i. of this section.

3. **Upset Requirements.**
   a. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph 3. b. of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
   b. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
      i. An upset occurred and that the permittee can identify the cause(s) of the upset;
      ii. The permitted facility was at the time being properly operated; and
      iii. The permittee submitted notice of the upset as required in Section B – Reporting Requirements, paragraph 2. b. ii. (24-hour notice).
      iv. The permittee complied with any remedial measures required under Section D – Administrative Requirements, paragraph 4.
   c. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

Section D – Administrative Requirements

1. **Duty to Comply.** The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Missouri Clean Water Law and Federal Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.
   a. The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
   b. The Federal Clean Water Act provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed $25,000 per day for each violation. The Federal Clean Water Act provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than one (1) year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than two (2) years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than three (3) years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than six (6) years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions.
   c. Any person may be assessed an administrative penalty by the EPA Director for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000.
   d. It is unlawful for any person to cause or permit any discharge of water contaminants from any water contaminant or point source located in Missouri in violation of sections 644.006 to 644.141 of the Missouri Clean Water Law, or any standard, rule or regulation promulgated by the commission. In the event the commission or the director determines that any provision of sections 644.006 to 644.141 of the Missouri Clean Water Law or standard, rules, limitations or regulations promulgated pursuant thereto, or permits issued by, or any final abatement order, other order, or determination made by the commission or the director, or any filing requirement pursuant to sections 644.006 to 644.141 of the Missouri Clean Water Law or any other provision which this state is required to enforce pursuant to any federal water pollution control act, is being, was, or is in imminent danger of being violated, the commission or director may cause to have instituted a civil action in any court of competent jurisdiction for the injunctive relief to prevent any such violation or further violation or for the assessment of a penalty not to exceed $10,000 per day for each day, or part thereof, the violation occurred and continues to occur, or both, as the court deems proper. Any person who willfully or negligently commits any violation in this paragraph shall, upon conviction, be punished by a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than one year, or both. Second and successive convictions for violation of the same provision of this paragraph by any person shall be punished by a fine of not more than $50,000 per day of violation, or by imprisonment for not more than two (2) years, or both.

2. **Duty to Reapply.**
   a. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.
   b. A permittee with a currently effective site-specific permit shall submit an application for renewal at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Department. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)
   c. A permittees with currently effective general permit shall submit an application for renewal at least 30 days before the existing permit expires, unless the permittee has been notified by the Department that an earlier application must be made. The Department may grant permission for a later submission date. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)

3. **Need to Halt or Reduce Activity Not a Defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

4. **Duty to Mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

5. **Proper Operation and Maintenance**. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

6. **Permit Actions.**
   a. Subject to compliance with statutory requirements of the Law and Regulations and applicable Court Order, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:
      i. Violations of any terms or conditions of this permit or the law;
      ii. Having obtained this permit by misrepresentation or failure to disclose fully any relevant facts;
      iii. A change in any circumstances or conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge; or
      iv. Any reason set forth in the Law or Regulations.
   b. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

7. **Permit Transfer.**
   a. Subject to 10 CSR 20-6.010, an operating permit may be transferred upon submission to the Department of an application to transfer signed by the existing owner and the new owner, unless prohibited by the terms of the permit. Until such time the permit is officially transferred, the original permittee remains responsible for complying with the terms and conditions of the existing permit.
   b. The Department may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Missouri Clean Water Law or the Federal Clean Water Act.
   c. The Department, within 30 days of receipt of the application, shall notify the new permittee of its intent to revoke or reissue or transfer the permit.

8. **Toxic Pollutants.** The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the Federal Clean Water Act within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.

9. **Property Rights.** This permit does not convey any property rights of any sort, or any exclusive privilege.

10. **Duty to Provide Information.** The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.

11. **Inspection and Entry.** The permittee shall allow the Department, or an authorized representative (including an authorized contractor acting as a representative of the Department), upon presentation of credentials and other documents as may be required by law, to:
   a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
   b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
   c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
   d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Federal Clean Water Act or Missouri Clean Water Law, any substances or parameters at any location.

12. **Closure of Treatment Facilities.**
   a. Persons who cease operation or plan to cease operation of waste, wastewater, and sludge handling and treatment facilities shall close the facilities in accordance with a closure plan approved by the Department.
   b. Operating Permits under 10 CSR 20-6.010 or under 10 CSR 20-6.015 are required until all waste, wastewater, and sludges have been disposed of in accordance with the closure plan approved by the Department and any disturbed areas have been properly stabilized. Disturbed areas will be considered stabilized when perennial vegetation, pavement, or structures using permanent materials cover all areas that have been disturbed. Vegetative cover, if used, shall be at least 70% plant density over 100% of the disturbed area.

13. **Signatory Requirement.**
   a. All permit applications, reports required by the permit, or information requested by the Department shall be signed and certified. (See 40 CFR 122.22 and 10 CSR 20-6.010)
   b. The Federal Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six (6) months per violation, or by both.
   c. The Missouri Clean Water Law provides that any person who knowingly makes any false statement, representation or certification in any application, record, report, plan, or other document filed or required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than ten thousand dollars, or by imprisonment for not more than six months, or by both.

14. **Severability.** The provisions of the permit are severable, and if any provision of the permit, or the application of any provision of the permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of the permit, shall not be affected thereby.

STANDARD CONDITIONS FOR NPDES PERMITS
ISSUED BY
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION
March 1, 2014

PART III – SLUDGE AND BIOSOLIDS FROM DOMESTIC AND INDUSTRIAL WASTEWATER TREATMENT FACILITIES

SECTION A – GENERAL REQUIREMENTS

1. This permit pertains to sludge requirements under the Missouri Clean Water Law and regulation for domestic wastewater and industrial process wastewater. This permit also incorporates applicable federal sludge disposal requirements under 40 CFR 503 for domestic wastewater. The Environmental Protection Agency (EPA) has principal authority for permitting and enforcement of the federal sludge regulations under 40 CFR 503 for domestic wastewater. EPA has reviewed and accepted these standard sludge conditions. EPA may choose to issue a separate sludge addendum to this permit or a separate federal sludge permit at their discretion to further address the federal requirements.
2. These PART III Standard Conditions apply only to sludge and biosolids generated at domestic wastewater treatment facilities, including public owned treatment works (POTW), privately owned facilities and sludge or biosolids generated at industrial facilities.
3. Sludge and Biosolids Use and Disposal Practices:
    a. The permittee is authorized to operate the sludge and biosolids treatment, storage, use, and disposal facilities listed in the facility description of this permit.
    b. The permittee shall not exceed the design sludge volume listed in the facility description and shall not use sludge disposal methods that are not listed in the facility description, without prior approval of the permitting authority.
    c. The permittee is authorized to operate the storage, treatment or generating sites listed in the Facility Description section of this permit.
4. Sludge Received from other Facilities:
    a. Permittees may accept domestic wastewater sludge from other facilities including septic tank pumpings from residential sources as long as the design sludge volume is not exceeded and the treatment facility performance is not impaired.
    b. The permittee shall obtain a signed statement from the sludge generator or hauler that certifies the type and source of the sludge
5. These permit requirements do not supersede nor remove liability for compliance with county and other local ordinances.
6. These permit requirements do not supersede nor remove liability for compliance with other environmental regulations such as odor emissions under the Missouri Air Pollution Control Law and regulations.
7. This permit may (after due process) be modified, or alternatively revoked and reissued, to comply with any applicable sludge disposal standard or limitation issued or approved under Section 405(d) of the Clean Water Actor under Chapter 644 RSMo.
8. In addition to STANDARD CONDITIONS, the department may include sludge limitations in the special conditions portion or other sections of a site specific permit.
9. Alternate Limits in the Site Specific Permit.
   Where deemed appropriate, the department may require an individual site specific permit in order to authorize alternate limitations:
    a. A site specific permit must be obtained for each operating location, including application sites.
    b. To request a site specific permit, an individual permit application, permit fee, and supporting documents shall be submitted for each operating location. This shall include a detailed sludge/biosolids management plan or engineering report.
10. Exceptions to these Standard Conditions may be authorized on a case-by-case basis by the department, as follows:

a. The department will prepare a permit modification and follow permit notice provisions as applicable under 10 CSR 20-6.020, 40 CFR 124.10, and 40 CFR 501.15(a)(2)(ix)(E). This includes notification of the owner of the property located adjacent to each land application site, where appropriate.
b. Exceptions cannot be granted where prohibited by the federal sludge regulations under 40 CFR 503.

SECTION B – DEFINITIONS

1. Best Management Practices include agronomic loading rates, soil conservation practices and other site restrictions.
2. Biosolids means organic fertilizer or soil amendment produced by the treatment of domestic wastewater sludge..
3. Biosolids land application facility is a facility where biosolids are spread onto the land at agronomic rates for production of food or fiber. The facility includes any structures necessary to store the biosolids until soil, weather, and crop conditions are favorable for land application.
4. Class A biosolids means a material that has met the Class A pathogen reduction requirements or equivalent treatment by a Process to Further Reduce Pathogens (PFRP) in accordance with 40 CFR 503.
5. Class B biosolids means a material that has met the Class B pathogen reduction requirements or equivalent treatment by a Process to Significantly Reduce Pathogens (PFRP) in accordance with 40 CFR 503.
6. Domestic wastewater means wastewater originating from the sanitary conveniences of residences, commercial buildings, factories and institutions; or co-mingled sanitary and industrial wastewater processed by a (POTW) or a privately owned facility.
7. Industrial wastewater means any wastewater, also known as process water, not defined as domestic wastewater. Per 40 CFR Part 122, process water means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.
8. Mechanical treatment plants are wastewater treatment facilities that use mechanical devices to treat wastewater, including septic tanks, sand filters, extended aeration, activated sludge, contact stabilization, trickling filters, rotating biological discs, and other similar facilities. It does not include wastewater treatment lagoons and constructed wetlands for wastewater treatment.
9. Operating location as defined in 10 CSR 20-2.010 is all contiguous lands owned, operated or controlled by one (1) person or by two (2) or more persons jointly or as tenants in common.
10. Plant Available Nitrogen (PAN) is the nitrogen that will be available to plants during the growing seasons after biosolids application.
11. Public contact site is land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.
12. Sludge is the solid, semisolid, or liquid residue removed during the treatment of wastewater. Sludge includes septage removed from septic tanks or equivalent facilities. Sludge does not include carbon coal byproducts (CCBs)
13. Sludge lagoon is part of a mechanical wastewater treatment facility. A sludge lagoon is an earthen basin that receives sludge that has been removed from a wastewater treatment facility. It does not include a wastewater treatment lagoon or sludge treatment units that are not a part of a mechanical wastewater treatment facility.
14. Septage is the material pumped from residential septic tanks and similar treatment works (with a design population of less than 150 people). The standard for biosolids from septage is different from other sludges.

SECTION C – MECHANICAL WASTEWATER TREATMENT FACILITIES

1. Sludge shall be routinely removed from wastewater treatment facilities and handled according to the permit facility description and sludge conditions of this permit.
2. The permittee shall operate the facility so that there is no sludge discharged to waters of the state.
3. Mechanical treatment plants shall have separate sludge storage compartments in accordance with 10 CSR 20, Chapter 8. Failure to remove sludge from these storage compartments on the required design schedule is a violation of this permit.

SECTION D – SLUDGE DISPOSED AT OTHER TREATMENT FACILITY OR CONTRACT HAULER

1. This section applies to permittees that haul sludge to another treatment facility for disposal or use contract haulers to remove and dispose of sludge.
2. Permittees that use contract haulers are responsible for compliance with all the terms of this permit including final disposal, unless the hauler has a separate permit for sludge or biosolids disposal issued by the department; or the hauler transports the sludge to another permitted treatment facility.
3. Haulers who land apply septage must obtain a state permit.
4. Testing of sludge, other than total solids content, is not required if sludge is hauled to a municipal wastewater treatment facility or other permitted wastewater treatment facility, unless it is required by the accepting facility.

SECTION E – INCINERATION OF SLUDGE

1. Sludge incineration facilities shall comply with the requirements of 40 CFR 503 Subpart E; air pollution control regulations under 10 CSR 10; and solid waste management regulations under 10 CSR 80.
2. Permittee may be authorized under the facility description of this permit to store incineration ash in lagoons or ash ponds. This permit does not authorize the disposal of incineration ash. Incineration ash shall be disposed in accordance with 10 CSR 80; or if the ash is determined to be hazardous with 10 CSR 25.
3. In addition to normal sludge monitoring, incineration facilities shall report the following as part of the annual report, quantity of sludge incinerated, quantity of ash generated, quantity of ash stored, and ash used or disposal method, quantity, and location. Permittee shall also provide the name of the disposal facility and the applicable permit number.

SECTION F – SURFACE DISPOSAL SITES AND SLUDGE LAGOONS

1. Surface disposal sites of domestic facilities shall comply with the requirements in 40 CFR 503 Subpart C; air pollution control regulations under 10 CSR 10; and solid waste management regulations under 10 CSR 80.
2. Sludge storage lagoons are temporary facilities and are not required to obtain a permit as a solid waste management facility under 10 CSR 80. In order to maintain sludge storage lagoons as storage facilities, accumulated sludge must be removed routinely, but not less than once every two years unless an alternate schedule is approved in the permit. The amount of sludge removed will be dependent on sludge generation and accumulation in the facility. Enough sludge must be removed to maintain adequate storage capacity in the facility.
    a. In order to avoid damage to the lagoon seal during cleaning, the permittee may leave a layer of sludge on the bottom of the lagoon, upon prior approval of the department; or
    b. Permittee shall close the lagoon in accordance with Section H.

SECTION G – LAND APPLICATION

1. The permittee shall not land apply sludge or biosolids unless land application is authorized in the facility description or the special conditions of the issued NPDES permit.
2. Land application sites within a 20 miles radius of the wastewater treatment facility are authorized under this permit when biosolids are applied for beneficial use in accordance with these standard conditions unless otherwise specified in a site specific permit. If the permittee's land application site is greater than a 20 mile radius of the wastewater treatment facility, approval must be granted from the department.
3. Land application shall not adversely affect a threatened or endangered species or its designated critical habitat.
4. Biosolids shall not be applied unless authorized in this permit or exempted under 10 CSR 20, Chapter 6.
    a. This permit does not authorize the land application of domestic sludge except for when sludge meets the definition of biosolids.
    b. This permit authorizes "Class A or B" biosolids derived from domestic wastewater and/or process water sludge to be land applied onto grass land, crop land, timber or other similar agricultural or silviculture lands at rates suitable for beneficial use as organic fertilizer and soil conditioner.

5. Public Contact Sites:

Permittees who wish to apply Class A biosolids to public contact sites must obtain approval from the department after two years of proper operation with acceptable testing documentation that shows the biosolids meet Class A criteria. A shorter length of testing will be allowed with prior approval from the Department. Authorization for land applications must be provided in the special conditions section of this permit or in a separate site specific permit.

a. After Class B biosolids have been land applied, public access must be restricted for 12 months.
b. Class B biosolids are only land applied to root crops, home gardens or vegetable crops whose edible parts will not be for human consumption.

6. Agricultural and Silvicultural Sites:

Septage – Based on Water Quality guide 422(WQ422) published by the University of Missouri

a. Haulers that land apply septage must obtain a state permit

b. Do not apply more than 30,000 gallons of septage per acre per year.

c. Septage tanks are designed to retain sludge for one to three years which will allow for a larger reduction in pathogens and vectors, as compared to other mechanical type treatment facilities.

d. To meet Class B sludge requirements, maintain septage at 12 pH for at least thirty (30) minutes before land application. 50 pounds of hydrated lime shall be added to each 1,000 gallons of septage in order to meet pathogen and vector stabilization for septage biosolids applied to crops, pastures or timberland.

e. Lime is to added to the pump truck and not directly to the septic tanks, as lime would harm the beneficial bacteria of the septic tank.

Biosolids - Based on Water Quality guide 423, 424, and 425 (WQ423, WQ424, WQ425) published by the University of Missouri;

a. Biosolids shall be monitored to determine the quality for regulated pollutants

b. The number of samples taken is directly related to the amount of sludge produced by the facility (See Section I of these Standard Conditions). Report as dry weight unless otherwise specified in the site specific permit. Samples should be taken only during land application periods. When necessary, it is permissible to mix biosolids with lower concentrations of biosolids as well as other suitable department approved material to reach the maximum concentration of pollutants allowed.

c. Table 1 gives the maximum concentration allowable to protect water quality standards

TABLE 1

Biosolids ceiling concentration[1]	
Pollutant	Milligrams per kilogram dry weight
Arsenic	75
Cadmium	85
Copper	4,300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7,500

[1]Land application is not allowed if the sludge concentration exceeds the maximum limits for any of these pollutants

d. The low metal concentration biosolids has reduced requirements because of its higher quality and can safely be applied for 100 years or longer at typical agronomic loading rates. (See Table 2)

TABLE 2

Biosolids Low Metal Concentration[1]	
Pollutant	Milligrams per kilogram dry weight
Arsenic	41
Cadmium	39
Copper	1,500
Lead	300
Mercury	17
Nickel	420
Selenium	36
Zinc	2,800

[1]You may apply low metal biosolids without tracking cumulative metal limits, provided the cumulative application of biosolids does not exceed 500 dry tons per acre.

e. Each pollutant in Table 3 has an annual and a total cumulative loading limit, based on the allowable pounds per acre for various soil categories.

TABLE 3

Pollutant	CEC 15+		CEC 5 to 15		CEC 0 to 5	
	Annual	Total[1]	Annual	Total[1]	Annual	Total[1]
Arsenic	1.8	36.0	1.8	36.0	1.8	36.0
Cadmium	1.7	35.0	0.9	9.0	0.4	4.5
Copper	66.0	1,335.0	25.0	250.0	12.0	125.0
Lead	13.0	267.0	13.0	267.0	13.0	133.0
Mercury	0.7	15.0	0.7	15.0	0.7	15.0
Nickel	19.0	347.0	19.0	250.0	12.0	125.0
Selenium	4.5	89.0	4.5	44.0	1.6	16.0
Zinc	124.0	2,492.0	50.0	500.0	25.0	250.0

[1]Total cumulative loading limits for soils with equal or greater than 6.0 pH (salt based test) or 6.5 pH (water based test)

TABLE 4 - Guidelines for land application of other trace substances[1]

Cumulative Loading	
Pollutant	Pounds per acre
Aluminum	4,000[2]
Beryllium	100
Cobalt	50
Fluoride	800
Manganese	500
Silver	200
Tin	1,000
Dioxin	(10 ppt in soil)[3]
Other	[4]

[1]Design of land treatment systems for Industrial Waste, 1979. Michael Ray Overcash, North Carolina State University and Land Treatment of Municipal Wastewater, EPA 1981.)
[2]This applies for a soil with a pH between 6.0 and 7.0 (salt based test) or a pH between 6.5 to 7.5 (water based test). Case-by-case review is required for higher pH soils.

[3]Total Dioxin Toxicity Equivalents (TEQ) in soils, based on a risk assessment under 40 CFR 744, May 1998.

[4]Case by case review. Concentrations in sludge should not exceed the 95th percentile of the National Sewage Sludge Survey, EPA, January 2009.

Best Management Practices – Based on Water Quality guide 426(WQ426) published by the University of Missouri

a. Use best management practices when applying biosolids.
b. Biosolids cannot discharge from the land application site
c. Biosolid application is subject to the Missouri Department of Agriculture State Milk Board concerning grazing restrictions of lactating dairy cattle.
d. Biosolid application must be in accordance with section 4 of the Endangered Species Act.
e. Do not apply more than the agronomic rate of nitrogen needed.
f. The applicator must document the Plant Available Nitrogen (PAN) loadings, available nitrogen in the soil and crop removals unless the nitrogen content of the biosolids does not exceed 50,000 milligrams per kilogram of total nitrogen on a dry weight basis and biosolids application rate is less than two dry tons per acre per year.
    i. PAN can be determined as follows and is in accordance with WQ426

(Nitrate + nitrite nitrogen) + (organic nitrogen x 0.2) + (ammonia nitrogen x volatilization factor[1]).

[1] Volatilization factor is 0.7 for surface application and 1 for subsurface application.

g. Buffer zones are as follows:
    i. 300 feet of a water supply well, sinkhole, lake, pond, water supply reservoir or water supply intake in a stream;
    ii. 300 feet of a losing stream, no discharge stream, stream stretches designated for whole body contact recreation, wild and scenic rivers, Ozark National Scenic Riverways or outstanding state resource waters as listed in the Water Quality Standards, 10 CSR 20-7.031;
    iii. 150 feet if dwellings;
    iv. 100 feet of wetlands or permanent flowing streams;
    v. 50 feet of a property line or other waters of the state, including intermittent flowing streams.
h. Slope limitation for application sites are as follows;
    i. A slope 0 to 6 percent has no rate limitation
    ii. Applied to a slope 7 to 12 percent, the applicator may apply biosolids when soil conservation practices are used to meet the minimum erosion levels
    iii. Slopes > 12, apply biosolids only when grass is vegetated and maintained with at least 80 percent ground cover at a rate of two dry tons per acre per year or less.
i. No biosolids may be land applied in an area that it is reasonably certain that pollutants will be transported into waters of the state.
j. Do not apply biosolids to sites with soil that is snow covered, frozen or saturated with liquid without prior approval by the department.
k. Biosolids / sludge applicators must keep detailed records up to five years.

SECTION H – CLOSURE REQUIREMENTS

1. This section applies to all wastewater facilities (mechanical, industrial, and lagoons) and sludge or biosolids storage and treatment facilities and incineration ash ponds. It does not apply to land application sites.
2. Permittees of a domestic wastewater facility who plan to cease operation must obtain department approval of a closure plan which addresses proper removal and disposal of all residues, including sludge, biosolids. Mechanical plants, sludge lagoons, ash ponds and other storage structures must obtain approval of a closure plan from the department. Permittee must maintain this permit until the facility is closed in accordance with the approved closure plan per 10 CSR 20 – 6. 010 and 10 CSR 20 – 6.015.
3. Residuals that are left in place during closure of a lagoon or earthen structure or ash pond shall not exceed the agricultural loading rates as follows:

a. Residuals shall meet the monitoring and land application limits for agricultural rates as referenced in Section H of these standard conditions.
b. If a wastewater treatment lagoon has been in operation for 15 years or more without sludge removal, the sludge in the lagoon qualifies as a Class B biosolids with respect to pathogens due to anaerobic digestion, and testing for fecal coliform is not required. For other lagoons, testing for fecal coliform is required to show compliance with Class B biosolids limitations. In order to reach Class B biosolids requirements, fecal coliform must be less than 2,000,000 colony forming units or 2,000,000 most probable number. All fecal samples must be presented as geometric mean per gram.
c. The allowable nitrogen loading that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. For a grass cover crop, the allowable PAN is 300 pounds/acre.
    i. PAN can be determined as follows:

(Nitrate + nitrite nitrogen) + (organic nitrogen x 0.2) + (ammonia nitrogen x volatilization factor[1]).

[1] Volatilization factor is 0.7 for surface application and 1 for subsurface application.

4. When closing a domestic wastewater treatment lagoon with a design treatment capacity equal or less than 150 persons, the residuals are considered "septage" under the similar treatment works definition. See Section B of these standard conditions. Under the septage category, residuals may be left in place as follows:
    a. Testing for metals or fecal coliform is not required
    b. If the wastewater treatment lagoon has been in use for less than 15 years, mix lime with the sludge at a rate of 50 pounds of hydrated lime per 1000 gallons (134 cubic feet) of sludge.
    c. The amount of sludge that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. 100 dry tons/acre of sludge may be left in the basin without testing for nitrogen. If 100 dry tons/acre or more will be left in the lagoon, test for nitrogen and determine the PAN using the calculation above. Allowable PAN loading is 300 pounds/acre.
5. Residuals left within the domestic lagoon shall be mixed with soil on at least a 1 to 1 ratio, the lagoon berm shall be demolished, and the site shall be graded and contain ≥70% vegetative density over 100% of the site so as to avoid ponding of storm water and provide adequate surface water drainage without creating erosion.
6. Lagoons and/or earthen structure and/or ash pond closure activities shall obtain a storm water permit for land disturbance activities that equal or exceed one acre in accordance with 10 CSR 20-6.200
7. When closing a mechanical wastewater and/or industrial process wastewater plant; all sludge must be cleaned out and disposed of in accordance with the department approved closure plan before the permit for the facility can be terminated.
    a. Land must be stabilized which includes any grading, alternate use or fate upon approval by the department, remediation, or other work that exposes sediment to stormwater per 10 CSR 20-6.200. The site shall be graded and contain ≥70% vegetative density over 100% of the site, so as to avoid ponding of storm water and provide adequate surface water drainage without creating erosion.
    b. Per 10 CSR 20-6.015(4)(B)6, Hazardous Waste shall not be land applied or disposed during industrial and mechanical plant closures unless in accordance with Missouri Hazardous Waste Management Law and Regulations under 10 CSR 25.
    c. After demolition of the mechanical plant / industrial plant, the site must only contain clean fill defined in RSMo 260.200 (5) as uncontaminated soil, rock, sand, gravel, concrete, asphaltic concrete, cinderblocks, brick, minimal amounts of wood and metal, and inert solids as approved by rule or policy of the department for fill or other beneficial use. Other solid wastes must be removed.
8. If sludge from the domestic lagoon or mechanical treatment plant exceeds agricultural rates under Section G and/or H, a landfill permit or solid waste disposal permit must be obtained if the permittee chooses to seek authorization for on-site sludge disposal under the Missouri Solid Waste Management Law and regulations per 10 CSR 80, and the permittee must comply with the surface disposal requirements under 40 CFR 503, Subpart C.

SECTION I – MONITORING FREQUENCY

1. At a minimum, sludge or biosolids shall be tested for volume and percent total solids on a frequency that will accurately represent sludge quantities produced and disposed. Please see the table below.

TABLE 5

Design Sludge Production (dry tons per year)	Monitoring Frequency (See notes 1 and 2)			
	Metals, Pathogens and Vectors	Nitrogen TKN[1]	Nitrogen PAN[2]	Priority Pollutants and TCLP[3]
0 to100	1 per year	1 per year	1 per month	1 per year
101 to 200	biannual	biannual	1 per month	1 per year
201 to 1,000	quarterly	quarterly	1 per month	1 per year
1,001 to 10,000	1 per month	1 per month	1 per week	--[4]
10,001 +	1 per week	1 per week	1 per day	--[4]

[1] Test total Kjeldahl nitrogen, if biosolids application is 2 dry tons per acre per year or less

[2] Calculate plant available nitrogen, if biosolids application is more than 2 dry tons per acre per year.

[3] Priority pollutants (40 CFR 122.21, Appendix D, Tables II and III) and toxicity characteristic leaching procedure (40 CFR 261.24) is required only for permit holders that must have a pre-treatment program.

[4] One sample for each 1,000 dry tons of sludge.

Note 1 : Total solids: A grab sample of sludge shall be tested one per day during land application periods for percent total solids. This data shall be used to calculate the dry tons of sludge applied per acre.
Note 2 : Total Phosphorus: Total phosphorus and total potassium shall be tested at the same monitoring frequency as metals.

2. If you own a wastewater treatment lagoon or sludge lagoon that is cleaned out once a year or less, you may choose to sample only when the sludge is removed or the lagoon is closed. Test one composite sample for each 100 dry tons of sludge or biosolids removed from the lagoon during the year within the lagoon at closing. Composite sample must represent various areas at one-foot depth.

3. Additional testing may be required in the special conditions or other sections of the permit. Permittees receiving industrial wastewater may be required to conduct additional testing upon request from the department.

4. At this time, the Department recommends monitoring requirements shall be performed in accordance with, "POTW Sludge Sampling and Analysis Guidance Document," United States Environmental Protection Agency, August 1989, and the subsequent revisions.

SECTION J – RECORD KEEPING AND REPORTING REQUIREMENTS

1. The permittee shall maintain records on file at the facility for at least five years for the items listed in these standard conditions and any additional items in the Special Conditions section of this permit. This shall include dates when the sludge facility is checked for proper operation, records of maintenance and repairs and other relevant information.
2. Reporting period
    a. By January 28th of each year, an annual report shall be submitted for the previous calendar year period for all mechanical wastewater treatment facilities, sludge lagoons, and sludge or biosolids disposal facilities.
    b. Permittees with wastewater treatment lagoons shall submit the above annual report only when sludge or biosolids are removed from the lagoon during the report period or when the lagoon is closed.
3. Report Forms. The annual report shall be submitted on report forms provided by the department or equivalent forms approved by the department.
4. Reports shall be submitted as follows:
   Major facilities (those serving 10,000 persons or 1 million gallons per day) shall report to both the department and EPA. Other facilities need to report only to the department. Reports shall be submitted to the addresses listed as follows:

DNR regional office listed in your permit
(see cover letter of permit)
ATTN: Sludge Coordinator

EPA Region VII
Water Compliance Branch (WACM)
Sludge Coordinator
11201 Renner Blvd.
Lenexa, KS 66219

5. Annual report Contents. The annual report shall include the following:
    a. Sludge and biosolids testing performed. Include a copy or summary of all test results, even if not required by the permit.
    b. Sludge or biosolids quantity shall be reported as dry tons for quantity generated by the wastewater treatment facility, the quantity stored on site at the end of the year, and the quantity used or disposed.
    c. Gallons and % solids data used to calculate the dry ton amounts.
    d. Description of any unusual operating conditions.
    e. Final disposal method, dates, and location, and person responsible for hauling and disposal.
        i. This must include the name, address for the hauler and sludge facility. If hauled to a municipal wastewater treatment facility, sanitary landfill, or other approved treatment facility, give the name of that facility.
        ii. Include a description of the type of hauling equipment used and the capacity in tons, gallons, or cubic feet.
    f. Contract Hauler Activities
    If contract hauler, provide a copy of a signed contract from the contractor. Permittee shall require the contractor to supply information required under this permit for which the contractor is responsible. The permittee shall submit a signed statement from the contractor that he has complied with the standards contained in this permit, unless the contract hauler has a separate sludge or biosolids use permit.
    g. Land Application Sites:
        i. Report the location of each application site, the annual and cumulative dry tons/acre for each site, and the landowners name and address. The location for each spreading site shall be given as a legal description for nearest ¼, ¼, Section, Township, Range, and county, or UTM coordinates. If biosolids application exceeds 2 dry tons/acre/year, reports biosolids nitrogen results, Plant Available Nitrogen (PAN) in pounds/acre, crop nitrogen requirement.
        ii. If the “Low Metals” criteria are exceeded, report the annual and cumulative pollutant loading rates in pounds per acre for each applicable pollutant, and report the percent of cumulative pollutant loading which has been reached at each site.
        iii. Report the method used for compliance with pathogen and vector attraction requirements.
        iv. Report soil test results for pH, CEC, and phosphorus. If none was tested during the year, report the last date when tested and results.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH
FORM A – APPLICATION FOR CONSTRUCTION OR OPERATING PERMIT UNDER MISSOURI CLEAN WATER LAW

AI-T1612

FOR AGENCY USE ONLY	
CHECK NUMBER: No Payment received.	
DATE RECEIVED: 1-27-14	FEE SUBMITTED: Ø

JM

Note ▶ PLEASE READ THE ACCOMPANYING INSTRUCTIONS BEFORE COMPLETING THIS FORM. 2/3/14 JB

1. This application is for:
- ☐ An operating permit and antidegradation review public notice
- ☐ A construction permit following an appropriate operating permit and antidegradation review public notice
- ☐ A construction permit and concurrent operating permit and antidegradation review public notice
- ☐ A construction permit (submitted before Aug. 30, 2008 or antidegradation review is not required)
- ☐ An operating permit for a new or unpermitted facility — Construction Permit # _____
- ☐ An operating permit renewal: permit # MO- _____ — Expiration Date _____
- ☑ An operating permit modification: permit # MO- 0000337 — Reason: Change discharge location

1.1 Is the appropriate fee included with the application? (See instructions for appropriate fee) ☑ YES ☐ NO

2. FACILITY

NAME		TELEPHONE WITH AREA CODE
Buick Resource Recycling Facility		(573) 626-3406
		FAX (573) 626-3304
ADDRESS (PHYSICAL)	CITY	STATE / ZIP CODE
18594 Highway KK	Boss	MO 65440

3. OWNER

NAME	E-MAIL ADDRESS	TELEPHONE WITH AREA CODE
The Buick Resource Recycling Facility, LLC	jlanzafame@doerun.com	(573) 626-3406
		FAX (573) 626-3304
ADDRESS (MAILING)	CITY	STATE / ZIP CODE
18594 Highway KK	Boss	MO 65440

3.1 Request review of draft permit prior to public notice? ☑ YES ☐ NO

4. CONTINUING AUTHORITY

NAME		TELEPHONE WITH AREA CODE
The Buick Resource Recycling Facility, LLC		(573) 626-3406
		FAX (573) 626-3304
ADDRESS (MAILING)	CITY	STATE / ZIP CODE
18594 Highway KK	Boss	MO 65440

5. OPERATOR

NAME	CERTIFICATE NUMBER	TELEPHONE WITH AREA CODE
NA		FAX
ADDRESS (MAILING)	CITY	STATE / ZIP CODE

6. FACILITY CONTACT

NAME	TITLE	TELEPHONE WITH AREA CODE
Jim Lanzafame	Environmental & Health Manager	(573) 626-3406
		FAX (573) 626-3304

7. ADDITIONAL FACILITY INFORMATION

7.1 Legal Description of Outfalls. (Attach additional sheets if necessary.)

001* SE ¼ SW ¼ Sec 14 T 34N R 2W Iron County
UTM Coordinates Easting (X): 664868 Northing (Y): 4166819
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

002 ____ ¼ ____ ¼ Sec ____ T ____ R ____ ____ County
UTM Coordinates Easting (X) _____ Northing (Y): _____

003 ____ ¼ ____ ¼ Sec ____ T ____ R ____ ____ County
UTM Coordinates Easting (X): _____ Northing (Y): _____

004 ____ ¼ ____ ¼ Sec ____ T ____ R ____ ____ County
UTM Coordinates Easting (X): _____ Northing (Y): _____

7.2 Primary Standard Industrial Classification (SIC) and Facility North American Industrial Classification System (NAICS) Codes.

001 – SIC 3341 and NAICS _____ 002 – SIC _____ and NAICS _____
003 – SIC _____ and NAICS _____ 004 – SIC _____ and NAICS _____

MO 780-1479 (01-09)

* The requested modification is a relocation of the Outfall 001 discharge to the tailings basin at Buick Iron Buick Mine/Mill. The sampling location will remain the same. However, discharge will no longer report to the unnamed tributary to Crooked Creek. Instead it will discharge to the tailings basin, which discharges to an unnamed tributary to Strother Creek under Missouri State Operating Permit MO-002003

RECEIVED
JAN 27 2014
By _____

SC
1 of 2

8.	**ADDITIONAL FORMS AND MAPS NECESSARY TO COMPLETE THIS APPLICATION (Complete all forms that are applicable.)**		
A.	Is your facility a manufacturing, commercial, mining or silviculture waste treatment facility? If yes, complete Form C (unless storm water only, then complete U.S. Environmental Protection Agency Form 2F per Item C below).	YES ☐	NO ☐
B.	Is your facility considered a "Primary Industry" under EPA guidelines: If yes, complete Forms C and D.	YES ☐	NO ☐
C	Is application for storm water discharges only? If yes, complete EPA Form 2F.	YES ☐	NO ☐
D.	Attach a map showing all outfalls and the receiving stream at 1" = 2,000' scale.		
E.	Is wastewater land applied? If yes, complete Form I.	YES ☐	NO ☐
F	Is sludge, biosolids, ash or residuals generated, treated, stored or land applied? If yes, complete Form R.	YES ☐	NO ☐

9. DOWNSTREAM LANDOWNER(S) Attach additional sheets as necessary. See Instructions. (PLEASE SHOW LOCATION ON MAP. SEE 8.D ABOVE).

NAME			
U.S. Forest Service - Mark Twain National Forest, Salem District Office			
ADDRESS	**CITY**	**STATE**	**ZIP CODE**
1301 South Main	Salem	MO	65560

10. I certify that I am familiar with the information contained in the application, that to the best of my knowledge and belief such information is true, complete and accurate, and if granted this permit, I agree to abide by the Missouri Clean Water Law and all rules, regulations, orders and decisions, subject to any legitimate appeal available to applicant under the Missouri Clean Water Law to the Missouri Clean Water Commission.

NAME AND OFFICIAL TITLE (TYPE OR PRINT)	TELEPHONE WITH AREA CODE
James M. Lanzafame	(573) 626-3406
SIGNATURE	**DATE SIGNED**
Justin T. Prowse for: James M. Lanzafame	1-17-2014

MO 780-1479 (01-09)

BEFORE MAILING, PLEASE ENSURE ALL SECTIONS ARE COMPLETED AND ADDITIONAL FORMS, IF APPLICABLE, ARE INCLUDED.

Submittal of an incomplete application may result in the application being returned.

HAVE YOU INCLUDED:

- ☐ Appropriate Fees?
- ☐ Map at 1" = 2000' scale?
- ☐ Signature?
- ☐ Form C, if applicable?
- ☐ Form D, if applicable?
- ☐ Form 2F, if applicable?
- ☐ Form I (Irrigation), if applicable?
- ☐ Form R (Sludge), if applicable?

DOE RUN
RESOURCE
RECYCLING
DIVISION

James M. Lanzafame
Health & Environmental Manager
jlanzafame@doerun.com

January 17, 2014

Mr. Chris Wieberg
Missouri Department of Natural Resources
Water Protection Program
P.O. Box 176
Jefferson City, MO 65102-0176

RE: Permit Modification Request for Buick Resource Recycling Facility MO-0000337

Dear Mr. Wieberg:

Pursuant to 10 CSR 20-6.010(4), this letter requests a modification for Buick Resource Recycling Facility (BRRF), Missouri State Operating Permit MO-0000337. Enclosed with this letter are a completed Form A, map and figures and a check for $1,250. Although the facility is considered a mining facility and a primary industry under EPA guidelines, these modifications do not affect flow or quality of effluent; therefore, we request a waiver of forms C, D and R.

The requested modification is a relocation of the Outfall 001 discharge to the tailings basin at Doe Run Buick Mine/Mill. The sampling location will remain the same, however the discharge will no longer report to the unnamed tributary to Crooked Creek. Instead it will discharge to the tailings basin, which discharges to an unnamed tributary to Strother Creek under Missouri State Operating Permit MO-002003.

Please feel free to contact me at 573-626-3406 if you have any questions. Thank you for your attention to this matter.

Sincerely,

Cindy M Fromme for James M. Lanzafame

James M. Lanzafame

Enclosures
c: Mike Hefner, MDNR SERO
Mark Cummings, Doe Run